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The production of basic steel in Germany last year is reported by the Iron and Steel Makers' Union as below, in metric tons:

	1898.	1899.	Changes.	Per ct.
Converter	3,606,737	3,973,225	I. 366,488	10.2
Open-hearth	1,459,159	1,693,825	I. 264,666	18.2
Totals	5,065,896	5,667,050	I. 631,154	12.5

The statement does not include the production of Bessemer steel by the acid process; in 1898 this was 668,411 metric tons. The production of Bessemer pig iron in 1899 was slightly less than in 1898, so that the Bessemer steel make was probably stationary. This would make the total output of steel ingots in 1899 about 6,330,000 metric tons. This is the largest production ever reported, and shows that in Germany the proportion of the iron made which is converted into steel is still steadily increasing. The gain in open-hearth steel is notable.

Activity in mining and in manufacturing in most parts of the world has resulted in advances in the prices of the less important metals, as well as in those which are chiefly used in construction. One instance of this is found in quicksilver which has now for several months been maintained at a higher level than has been known for several years. The quotation for large quantities in London is at present £9 12s. 6d. per flask (76 pounds) and in New York $51 per flask. The difference is due to the duty of 6 cents per pound imposed by the United States tariff; in other words, the New York price is the London price, with the duty added. The San Francisco quotation is about the same as in New York for domestic sales; for export the price is about $4.50 per flask lower, the duty being deducted. The production of the metal has not been increasing, the output in California—the only producing region in this country—being about stationary, while the cinnabar deposits in Texas and Oregon, for which much has been promised, show no new developments. The Austrian output is nearly stationary, while the Spanish mines, from which the larger part of the foreign supply comes, last year showed a considerable decrease. Under these circumstances there is no present probability of a reduction in prices.

It looks very much as if some of the schemes for mining the shore deposits of the Nome District in Alaska are being prepared without counting the cost, and with very little knowledge of the true conditions. A good deal is said of the probable returns to be obtained by mining beyond the low-water mark, and we hear of some dredging outfits which are to be prepared for use during the coming season. Now dredging for gold is not altogether as simple an operation in practice anywhere as it is on paper; and at Nome it is going to be very risky work. To try to operate a dredge in shallow water, on a sloping beach, where there is always a heavy swell, and where there is no protection whatever from frequent and violent storms, is not merely a difficult matter; a wreck is only a question of time, and probably a very short time. To work by sinking shafts and running tunnels out under the ocean bed is likely to be a costly and difficult task. The building of coffer dams and caissons which will stand against the waves will also be costly. Altogether the problem of working these shore deposits is not an easy one, and it is by no means certain whether gold will be found in quantities which will pay for the risks to be incurred. People should hesitate and investigate carefully before going into any of these schemes, or undertaking to transport heavy machinery to Nome.

A time of active demand and high prices like the present is not usually a good one for urging minor economies on iron makers. Nevertheless, such a period, when they have plenty of money to spend, should be the time for making improvements and providing for the inevitable recurrence of depression and lower prices by decreasing costs and utilizing all the by-products possible. One of these minor economies may be found in the utilization of the slag, which at most blast furnaces is considered merely a nuisance to be gotten rid of in the easiest possible way. Now there are several ways in which this slag can be put to profitable use, only a few of which can be mentioned here. One of these, which is already being tried, is the manufacture of slag cement; though this is necessarily limited, as only certain slags have the proper composition for this purpose. Slag wool is another rather limited use, but still of some importance. Basic slags are used in Germany as a fertilizer on account of the phosphoric acid they contain, and are considered very valuable on certain lands. The manufacture of slag brick might be found profitable in many cases; the methods used were described in the "Engineering and Mining Journal" March 12th and April 16th, 1898. Stone or building blocks can be advantageously made of slag, as Mr. A. D. Elbers showed in the "Engineering and Mining Journal" June 3d and 10th, 1899. Granulated or broken slag is an admirable material for making roads, and a market could surely be found, now that the movement for good roads is becoming so general throughout the country. A simi-

lar use is for ballasting railroad tracks, for which purpose slag is better material than anything else except the best class of broken stone; and in many parts of the country slag could be furnished at a cheaper rate than stone. The list could be extended; but doubtless other uses and perhaps still better ones can be suggested by the local conditions. Any profit, however small, which can be made on slag will reduce costs and will further serve to get rid of what is usually a troublesome encumbrance.

THE BATOPILAS MINES, MEXICO.

On another page we give an abstract of a report which shows the present condition and to some extent the prospects of the Batopilas Mines in Chihuahua, Mexico. The completion, after 15 years of work, of the Porfirio Diaz Tunnel makes it possible to conduct mining operations cheaply on the extensive bodies of low grade ores which are known to exist in the company's enormous concession, and to prospect to better advantage than heretofore for such bonanzas as may—and probably do—exist there. The company is now, for the first time, in a position to develop its property to the best advantage and in a systematic way, and to extend its operations very largely. The low grade ores can be treated at a profit, if economically handled, and any of higher grade which may be found will add to the returns.

The history of the Batopilas Mines is an extremely interesting one. During colonial days in Mexico a very large amount in silver was taken from them, and they were one of the prominent sources of the Spanish treasures drawn from Mexico. The mines had, however, been practically abandoned for many years when one of them was bought by some Americans in 1878. Soon after this property was taken up by Gov. Alexander R. Shepherd as representative of the American owners, and has since been practically under his control. For 21 years past Gov. Shepherd has made his residence at the mines and has worked with unfailing energy and perservance to bring to successful completion the great plans he had made for their successful operation. The labor of management has developed almost entirely upon him, and has been rendered especially difficult from the fact that the company has never had a sufficient working capital. It has been necessary to work chiefly on faith and credit, while the proceeds of several bonanzas during the 20 years have gone, in each case to pay the debts accrued while the mines were in borasca.

It has required not only faith in the future but unbounded energy and perserverance to carry on the work under these conditions, but inextinguishable hopefulness and his iron will have enabled Governor Shepherd to carry through his gigantic undertaking. In a world where one meets so little of earnest effort it is impossible to withhold our admiration from the man who gives his life and his fortune to the successful accomplishment of the task he has undertaken. Doubtless had he known at its inception what the work would cost him in time, in money and in personal sacrifices, even Governor Shepherd would have drawn back from the undertaking, and almost any other man would long ago have given it up. The twenty-one years that have brought Governor Shepherd to his present age, constitute practically the business life of a man, and so it may be said that Governor Shepherd has given his life, as he has his fortune, and he has immolated his family to the great work he has at heart. It was, indeed, almost impossible to find others willing to live in exile so many years. Mexico owes him an imperishable monument, for he has done more than any other one man for the development of this great mining district. Now let us hope success will crown these great sacrifices and bring to the man who has achieved it the reward he richly deserves.

The excellent portrait of Governor Shepherd which we publish herewith conveys a good impression of the iron will that has carried him through his great work.

THE UNITED ALKALI COMPANY OF GREAT BRITAIN.

It is now four years since the ordinary shareholders of the United Alkali Company, Limited, of Liverpool and Lancashire, England, received any dividend. The report for 1899, just issued, contains the melancholy intelligence that the improvement confidently hoped for a year ago has not been realised. The gross profit of the various works during 1899 was £380,215, and the net profits after deducting general expenses of administration were £319,599. Out of this the interest on £2,500,000 in 5 per cent. mortgage debentures, £120,833, had to be paid, leaving a balance of £198,766 available as dividend for the ordinary and preference shareholders. The 7 per cent. dividend on £2,825,240 preference shares absorbed £191,174, so there was nothing left for the ordinary shares, which represent a capital of £2,893,430. The directors give no details of the accounts nor any report worth mentioning. The continued absence of dividend supports our contention that the company has been over capitalized from the beginning. The United Alkali Company is an agglomeration of a variety of businesses which fit in together in a very useful manner as regards the use of each other's products and by-products, while the directorate includes such masters of chemical industry and administration as the Tennants, Gaskells, Gambles, Muspratts, McKechnies, Pilkingtons and others. Why is it, therefore, that the company is incapable of paying an ordinary dividend while its neighbor, Brunner, Mond & Company, Limited, makes such handsome returns? A net profit of £319,599 was made, so we cannot say that there is any mismanagement in the administration. On the other hand the issued capital in shares and debentures is nearly £8,500,000, the property being valued at £7,846,915, and the stock at £812,376. The valuation of the property is the one item that should be thoroughly investigated and overhauled. After this has been revised then the capital should be written down proportionally all round, interest on the debentures reduced to 4 per cent., on the preference dividend to 6 per cent., and a sinking fund started for the redemption of the debentures. Such a rearrangement could be effected without much hardship to any particular class of holder, and it is difficult to understand why the directors and shareholders have not faced the operation already.

SOME ANTHRACITE REPORTS.

We recently referred to the improvement instituted by the new management of the Delaware, Lackawanna & Western Company in presenting—for the first time in the history of the company—a full report of its operations. From this report we are able to obtain a clearer statement of the cost of mining and marketing anthracite coal than is given by the reports of any other anthracite company. From the report of the operations of the coal department we have prepared the accompanying table, showing the total and average results:

Coal Sales.	Tons.	Total Receipts.	Av. per ton.
At mines	76,054	$130,886	$1.72
Company's supply	710,334	819,273	1.15
Local agencies	3,631,867	12,489,803	3.44
Foreign agencies	1,385,949	6,823,621	4.92
Total sales	5,804,204	$20,263,583	$3.49
Increase in coal on hand	178,751	643,504	3.60
Coal shortage charged off	67,479	209,210	3.10
Earnings of company's barges	.....	103,563	....
Rents collected	.....	35,939	....
Total credit, coal mined	6,050,434	$21,315,799	$3.52
Mining and purchasing coal	6,050,434	$7,894,688	$1.30
Transportation	5,231,193	11,013,711	2.11
Handling and selling coal	4,742,760	1,339,965	0.28
Renewals and improvements	.....	163,262	0.03
Total charges in coal	6,050,434	$20,411,626	$3.37
Net earnings on coal	6,050,434	904,163	0.15

The total coal carried on the company's barges was 511,867 tons, and the average earnings were 32c. per ton. The average receipts in 1898, on 5,530,417 tons of coal sold, were $3.77 per ton. The handling and selling expenses last year were made up as follaws: Handling, 4,742,760 tons at agencies, $718,512 ($0.15 per ton); commissions paid on sales of 3,096,972 tons, $519,729 ($0.17 per ton); general expenses, $101,724; total, $1,339,965, as above. The transportation expenses in detail were as follows:

	Tons moved.	Total cost.	Per ton.
Local coal on company's lines	3,842,543	$6,597,054	$1.72
Foreign coal on company's lines	1,388,650	2,824,870	2.03
Foreign coal on other lines	1,388,650	1,453,803	1.05
Total rail transportation	5,231,193	$10,875,727	$2.08
Transportation by vessels	511,867	137,984	0.27
Total transportation	5,231,193	$11,013,711	$2.11

The total freight charge on foreign coal—which does not mean coal exported, but coal shipped to points on other railroads, beyond the terminal points of the company's lines—was $3.08 per ton. The coal transported on vessels is part of that included in the coal carried over the company's lines. No charge is made for the transportation of coal used by the company; the cost of that work is charged to motive power expenses of the railroad lines.

The different bases on which the averages are calculated make the accounts appear a little complicated. It is shown, however, that mining anthracite was 38.6 per cent. of the total cost; transportation, 54.0; selling expenses, 6.6; renewals and improvements, 0.8 per cent. The last named item is exceedingly small; and it may be added that no charge is made for sinking fund or depreciation of coal lands. We find also that last year the expenses absorbed 95.8 per cent. of the receipts. To put it in another form, we find that the cost of mining anthracite, including mine improvements, absorbed 37.8 per cent. of the receipts; transporting, 51.7 per cent.; selling, 6.3 per cent.; leaving only 4.2 per cent. of the total to pay interest on the investments.

The average rate per ton-mile on coal on the Delaware, Lackawanna & Western Railroad last year was 0.946 cent, while the average on general freight was 0.679 cent, or 28.8 per cent. less. If the same rates had been charged on coal as on miscellaneous freight, the transportation

charge above would have been less by $3,100,000, and the profits of the coal department of the company would have exceeded $4,000,000. If, again, the rate charged had been as low as that on West Virginia coal to tidewater, the transportation charges would have been only about $3,000,000. In both cases the profits of the railroad would, of course, have been decreased by corresponding amounts, and the result to the company in the end would have been the same, so far as its own coal was concerned. The difference would be only in the reduction of freights on the comparatively small quantity carried for individual operators. Outside of that it is simply a question as to the set of accounts to which charges and credits are to be made.

By way of comparison we give herewith also as complete a statement of costs as can be prepared from the report of the Delaware & Hudson Company for 1899. This company resembles the Delaware, Lacakwanna & Western in owning and operating its coal lands directly and not through a nominally separate company, which introduces further complication into the accounts. It differs in one way, since it does not own a line to tidewater, but ships its tidewater coal over the Erie. A large part of its coal, however, does reach market over the company's own lines, finding a sale in the cities of Central and Northern New York and Northern New England. The statement of receipts and costs is as follows:

	Total.	Per ton.
Sales of coal, 4,183,315 tons	$7,184,622	$1.72
Miscellaneous receipts and interest on investments	452,288	0.11
Total receipts	$7,636,910	$1.83
Miscellaneous receipts and interest on investments	452,288	0.11
Cost of mining coal	$5,110,140	$1.22
Handling and other expenses at terminals	226,413	6.05
Transportation to tidewater, by Erie R. R.	1,174,448	0.28
General and miscellaneous expenses	240,466	0.06
Taxes	240,466	0.05
Total expenses	$6,954,487	$1.66
Net earnings on coal account	682,423	$0.17

In order to make the computation of averages as close as possible, we have deducted from the cost of mining for the year the sum of $433,217 which is credited in the accounts for coal on hand at the close of the year. The average cost of transportation to tidewater cannot be exactly given, since the report does not state how much of the coal sold was sent to tidewater points..

A direct comparison of the two company's results is not possible, owing to the different way in which the accounts are presented. The Delaware & Hudson Company does not include in its statement the cost of transporting coal over its own lines, the selling price being evidently that at the mines. Making allowance for this it will be seen that the costs and receipts in the case of these companies do not differ more than we should expect from local circumstances. From its surplus or dividend fund the Delaware & Hudson Company pays into a sinking fund the sum of 5 cents a ton on all coal mined; this fund being applied to the retirement of the stock and bonds.

From both these reports it is again shown that the profit on anthracite coal is almost entirely in its transportation and distribution, and very little—if at all—in its mining.

NEW PUBLICATIONS.

"How to Run Engines and Boilers." By Egbert P. Watson. New York; Spon & Chamberlain, and London; E. & F. N. Spon, Limited. Pages, 160; illustrated. Price, $1.

This is a new edition of a little practical treatise written by Mr. Watson a number of years ago. It has been partially rewritten and brought up to date, and a chapter on water-tube boilers has been added. The book is rather a rambling and discursive one, but contains some good practical hints, although Mr. Watson's instructions are sometimes to be accepted with caution.

"Railroad Curves and Earthwork." By C. Frank Allen. New York; Spon & Chamberlain, and London; E. & F. N. Spon, Limited. Pages, 200; with diagrams and tables. Price, $2.

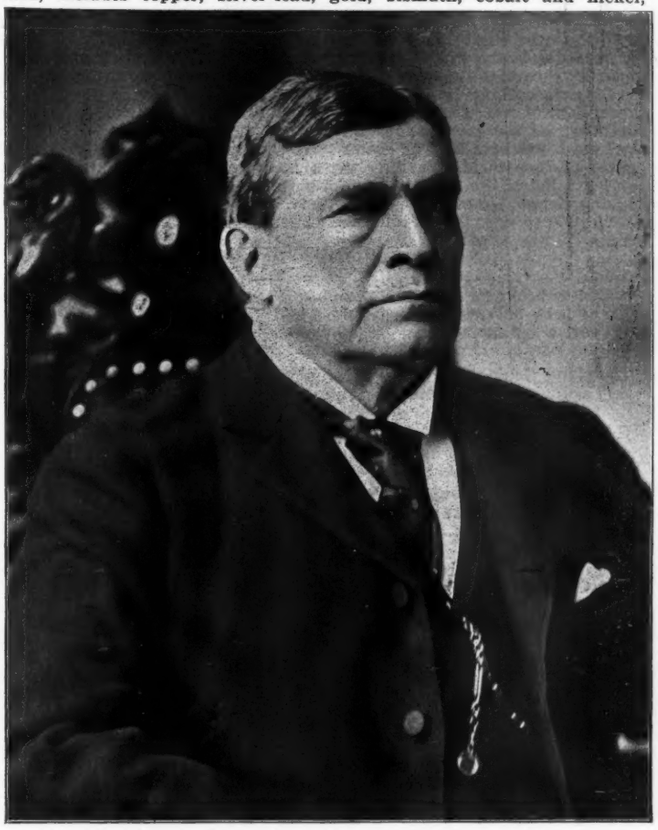
This book was originally prepared for the use of students in the author's classes at the Massachusetts Institute of Technology. Like most books of its kind, it is necessarily, in large part, a compilation, although there are many new demonstrations, and some new formulas. This is especially the case with the chapters on Compound Curves, and on Easement Curves. The arrangement and some of the methods of computation in the chapter on Earthwork are new and deserve attention. While written for students originally, it will be found convenient by many engineers for reference.

"Society for the Promotion of Engineering Education. Proceedings of the Seventh Annual Meeting, 1899." Edited by T. C. Mendenhall, I. O. Baker, A. Kingsbury and E. Marburg, Committee. Philadelphia; Published for the Society. Pages, 196.

The meeting of this society at Columbus, Ohio, in August last, of which this volume presents the record, called out some excellent papers, which are included here. Among these we may mention President Mendenhall's address, C. F. Allen's paper on Methods of Teaching Engineering, F. W. Springer's on Laboratory Work in Electrical Engineering, and C. R. Jones on Elective Studies in Engineering Courses. There were other papers also which deserve attention, and some of the discussions were exceedingly interesting. A number of the papers, however, were allowed to pass without discussion, probably owing to the time limitations which are usually important at meetings of this kind. The volume is an evidence of the work which the society is doing, and the interest in it taken by the members.

"Record of the Mines of South Australia." By H. Y. L. Brown, Government Geologist. Adelaide, South Australia; Government Printer. Pages, 192.

This is a new and corrected edition of the list of mines and mining claims in South Australia, corrected and brought up to date. The first edition was issued in 1887. The list is a much longer one than would be supposed by those who are not familiar with South Australia, and look upon it as the least important of the Australasian colonies in a mining sense. The mines are arranged alphabetically, in groups, according to the mineral which they produce; all of the copper mines, for instance, coming under one head. The list of products, in the order of their importance and the number of mines producing each, includes copper, silver-lead, gold, bismuth, cobalt and nickel,



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bitumen, coorongite, kaolin, quicksilver, phosphate, salt, asbestos, iron ore and flux, coal and lignite. Investigations are also being made into reported deposits of nitrate of soda and some other minerals of economic value.

"Report of the Tests of Metals and Other Materials for Industrial Purposes, made with the United States Testing Machines, at Watertown, Massachusetts." Major J. W. Reilly, U. S. A., in charge. Washington; Government Printing Office. Pages, 704.

This report covers the tests made during the fiscal year ending June 30th, 1898, and contains many interesting results. The testing machine at the Watertown Arsenal is used not only for Government work, but for testing material submitted by private parties. The total number of tests made during the year was 2,188, classified as follows: Gun specimens, 157; other materials for Ordnance Department, 430; other Government departments, 10; tests for private parties, 887; investigation tests, 704. The metal tests included, besides the material for guns and projectiles, tests of cast iron, pig iron, steel bars, chains, cold-rolled metal and a number of specimens for standardizing testing machines at private works. Tests were also made of wrought iron and nickel-steel, while many specimens of wire rope were included. In construction material there were tests of timber, building stones of various kinds, and a long series of cement and concrete trials. The work done at this arsenal is valuable not only in Government construction, but also to private establishments.

"The Journal of the Iron and Steel Institute." Volume LVI., being part 2 for 1899. Edited by Bennett H. Brough, Secretary. London; E. & F. N. Spon, Limited, and New York; Spon & Chamberlain. Pages, 554; illustrated.

The high standing of the "Proceedings" of the Iron and Steel Institute is well known, and the present volume is no exception to the general rule. A larger part of it is devoted to the reports of the Manchester meeting of the Institute, held in the early part of 1899, and the list of papers there read and discussed is a long one. These papers

included one by Prof. Wiborgh on the "Use of Finely Divided Iron Ore," and one by Mr. H. C. McNeill on "Some Forms of Magnetic Separators." Both of these papers relate chiefly to the practice of concentrating iron ores in Sweden, and taken together they cover the subject very thoroughly. An abstract of Mr. McNeill's excellent paper was presented to the readers of the "Engineering and Mining Journal," in the numbers for November 18th and 25th, 1899.

Two other papers refer to the iron manufacture in India, which is still in its infancy, but has great possibilities. These papers were on the "Iron Industry in the Hyderabad Deccan Territory," by S. A. Bilgrami, and the other on "India as a Center for Steel Manufacture," by Col. R. H. Mahon. A third group of papers, and probably the most important and elaborate presented at the meeting, treated from various points of view on the microscopic examination of steel and on the constitution of steel and its proper thermal and mechanical treatment. These papers were by C. H. Ridsdale, Dr. A. Stansfield, Albert Sauveur, E. D. Campbell and B. S. Summers. Two practical papers were those by R. H. Wainford on a "Casting Machine for Blast Furnaces," and by J. W. Miller, on "Pig Iron Fractures and their Value in Foundry Practice." Particular value attaches to the discussions at these meetings, which are in many cases made most interesting by the records of experience, and other facts presented.

A large part of the volume is devoted to notes on the iron and steel industries, embracing a wide range. These notes not only include a great deal of statistical information, but also give condensed summaries of many of the more important papers published during the year in technical journals and in the proceedings of scientific societies in all parts of the world. Several pages are also devoted to bibliography, giving a list of the principal works on mining and metallurgy published during the course of the year.

BOOKS RECEIVED.

In sending books for notices, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"Maryland Geological Survey: Volume III." Wm. Bullock Clark, State Geologist. Baltimore; the Johns Hopkins Press. Pages, 542; illustrated.

"Syllabus of a Course of Lectures on Economic Geology." By John C. Branner and John F. Newsom. Stanford University, Cal.; published by the Authors. Pages, 368; illustrated. Price, $2.75.

"Geological and Natural History Survey of Minnesota. Twenty-fourth (and final) Annual Report: 1895-1898." N. H. Winchell, State Geologist. Minneapolis, Minn.; University Press. Pages, 292; illustrated.

"Notes on Lead and Copper Smelting and Copper Converting." By Hiram W. Hixon. Third Edition, with Appendix. New York and London; the Scientific Publishing Company. Pages, 124; illustrated. Price, $3.

"Mining Engineers' Report Book and Directors' and Shareholders' Guide to Mining Reports." By Edwin R. Field. London; Charles Griffin & Company, and Philadelphia; the J. B. Lippincott Company. Pocket-book form. Price, $1.50.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials will only be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

The Bear Creek District, Idaho.

Sir: The Bear Creek Mining District is situated in Elmore County, Idaho, 65 miles from Mountain Home, the county seat, and reached from there by stage. It is a camp of considerable promise, though since 1885 there has been little large work done. It was discovered in 1863, and the output, from placers and quartz, aggregates over $50,000,000. There are few well developed properties, this being, in measure, attributable to the fact that the ore, in many instances, has been so rich that prospectors making a find could work the lead alone and get out sufficient value to make a good living without too much effort. There have been instances of mismanagement, of course, but, as a rule, few attempts have been made at proper and systematic development. The country rock is granite, with little porphyry, the best ore being found generally in a decomposed quartz, heavily oxidized. Rock that is impregnated with chloride is here determined, without any manner of a test, to be rich, and this has almost invariably proven the case. This characteristic of the camp has given to the miners and prospectors the name of "Chloriuers."

The Elmore Mine, which has produced many millions of dollars, with a weekly output for over two years of a 75-lb. gold brick, is now idle and full of water. There is here a shaft down 700 ft., with drifts, stopes and other excavations to make up more than a mile of underground workings. The mine is equipped with a 2,500-H.-P. Corliss engine, three powerful pumps, a 50-stamp mill, self-feeders, two Wilfley tables, complete assaying plant, hoisting machinery, etc.; in fact it is equipped for mining properly as soon as the water is expelled, which, it is understood, will be done this season.

The Vishnu Mine, also a large producer, is being worked under lease, with its 10-stamp mill pounding about a quarter of the time. The lessees are now working in not the best ground, but they can hardly expect everything to be pay streak.

Mr. E. F. Phelan is in charge of the Shields Mine, on Red Warrior Mountain, which was lately sold to a large Eastern syndicate. He is sinking 3 different shafts in ore, and running a long cross-cut to tap these and to drain the mine. A 10-stamp mill will be set up in another month, with a cyanide plant in connection, to work the tailings.

The Lison property, in Hardscrabble Gulch, has been sold to a strong Eastern company, which will at once commence large development. This is a property thoroughly developed to some depth, having produced considerable bullion during the past 20 years, though it has been the policy of the owners to extract only the ore coming out of the regular development workings.

Tne outlook for the camp from now on is very favorable. It undoubtedly has the ore, and with intelligent and persistent development will again become one of the most productive camps of the State.

C. A. Dinsmore.

Weiser, Idaho, March 25, 1900.

The Proximate Analysis of Coal.

Sir: I should like, through the medium of your paper, to enter a protest against a method which many chemists use in stating the proximate analyses of coals. The method I have reference to will be understood from the following data. The proximate analysis of the coal is found to be as follows:

Moisture	0.4
Volatile matter	27.2
Fixed carbon (by difference)	67.4
Ash	5.0
Total	100.0
Sulphur	4.0

It is assumed that half the sulphur exists in the volatile matter and the other half in the fixed carbon, and the analysis is stated, as follows:

Moisture	0.4
Volatile matter	25.2
Fixed carbon	65.4
Ash	5.0
Sulphur	4.0
Total	100.0

The reaction in relation to the sulphur which is assumed to take place when the volatile matter is driven off, is embraced in the following equation:

$$FeS_2 = FeS + S.$$

The final reaction which may be assumed to take place when the fixed carbon is burnt off may be taken as follows:

$$2\ FeS + O_7 = Fe_2\ O_3 + 2\ SO_2.$$

It will therefore be seen that for 128 parts of sulphur originally present in the coal, 48 parts of oxygen are added to the ash, which is equivalent to over 0.37 of the sulphur. As the fixed carbon is originally taken by difference, it is, therefore, obvious that 0.37 of the sulphur is already deducted from it, and in the above analysis an error of 1.48 per cent. will be caused when one-half the sulphur is further deducted therefrom.

Furthermore, why should sulphur be deducted from the volatile matter? Sulphur is just as much a combustible body as the hydrocarbons which principally compose the volatile matter in coal.

I therefore say in the name of accuracy and common sense, let all chemists report the sulphur outside of the analysis in a separate item.

Sulphur.

St. Louis, April 6, 1900.

MINING IN SIBERIA.

United States Consul General W. R. Holloway writes from St. Petersburg: "This consulate is in receipt of a number of letter by each American mail, from all parts of the United States, inclosing newspaper articles which say that a Russian engineer has recently made a report to his Government, stating that the same gold belt which has proved so rich at Cape Nome, Alaska, extends across the Bering Sea into Siberia, and that there are enormously rich quartz lodes in gold mines all over Russia, which are easy to work at a great profit, are owned by the Government, and will be sold to the highest bidder. It is also stated that the Emperor has issued an ukase permitting Americans to prospect for gold on the west coast of Siberia, and that preference is given to American miners and capital to explore the mineral wealth. The letters inquire as to the truth of these statements, for copies of Russian mining laws, and permits to prospect for gold in Russia, as numerous parties are organizing to take immediate advantage of this opportunity.

"I called on N. A. Denissoff, Director of the Mining Department, stated the substance of the articles, and he replied that, although the Government was taking steps to ascertain the conditions on the west coast of Siberia, the Emperor had not issued an ukase on that subject, nor was it probable that he would do so. He said that petitions might be made to the Emperor for permission to prospect for minerals in any part of Russia, which should be accompanied by recommendations as to the character of the applicant, his experience as a mining engineer, capital to be employed, etc., and it would be considered; but the best-informed people here do not believe permits can be obtained to prospect for gold on the west coast of Siberia until after the Russian Government has fully investigated its conditions. Were it ready to consider such applications, the probabilities are that it would require from two to three years before the same would be finally decided. Russian officials place no value on time, and it requires from 2 to 12 weeks to receive an answer to an official communication from the various departments, according to the work involved in the reply.

"The value of Russian gold mines has been greatly exaggerated. Several experienced American mining engineers, who are admitted to be the best in the world, have visited Siberia in the interests of English as well as American capitalists during the past three years and made extensive examinations of the conditions, and I have not heard of a single company being organized as a result of their reports. The mining is almost all placer. There is very little foreign capital in Siberia. No advantages are offered or discriminations made in favor of Americans engaging in any kind of business in Russia."

CHITWOOD HOLLOW, IN THE JOPLIN DISTRICT, MISSOURI.

The accompanying engraving is from a photograph, for which we are indebted to the courtesy of Mr. C. C. Hart, general manager of the John Jackson Mining Company. It shows a portion of the Chitwood Hollow Camp, located 2 miles west of Joplin, Missouri, and comprising one of the best known groups of mines in that celebrated district.

The mill on the extreme left is the Jack Johnson, while the small derrick which comes next toward the right is the Jim Jackson. The next mill, with the large tailing pile, is the famous John Jackson Mine, which has paid, in its time, more dividends than any single shaft ever opened in the district. Across the road, to the south of this mine, the first derrick belongs to the Andrew Jackson Mine. The next derrick and mill belong to the Jackson Junior Zinc Company, which is opening a mine that promises to be one of the largest producers of the camp.

These two leases comprise about 90 acres. A study of this photograph will be of interest to any one who knows anything about the Joplin District. It will be noticed that each of these large producing shafts is located just where the break of the hill makes out into the flat ground, and that the surface formation has the general shape of a large horseshoe. Drilling has demonstrated the fact that this draw is divided by several limestone bars, and that there is a regularly and clearly defined opening between these bars, leading from each of the shafts to the other. It is quite probable that the ground will be mined in the future until one can walk underground from the shaft on the extreme right to the one on the extreme left of the view.

SOME OF THE RESOURCES OF THE PHILIPPINES.

Written for the Engineering and Mining Journal by G. D. Rice.

It is now quite generally known that the Philippines have such minerals as iron, gold, silver, copper, lead, granite, petroleum, limestone and quartz, and that it is only a matter of time when these minerals will be mined and put into the commercial markets of the world. Long before the Americans first came here to engage in war, a great many foreign prospectors were surveying lands and staking off claims with a view of eventually establishing plants for the working of the minerals of the islands. Since the Americans have been here, and the cities and towns have been properly garrisoned, small parties of Americans and others have organized for the purpose of prospecting for gold in the hills. These small outfits are usually gone from one to two months, and ordinarily report back with information concerning the existence of gold in placer deposits and in veins or ledges. Very often some nuggets are brought in by the men, but as yet all work is done on such a small scale and attended with so many hardships that there is no money in it. One party which went out from Iloilo, on the Isle of Panay, crossed over the mountains to the opposite side of the island, prospecting as they went, and located indications of the presence of valuable metals in places where white men never trod before. The party was obliged to go afoot nearly the entire distance, leaving their horses behind at Passi, for the trails could not be traversed by any four-footed animal.

The grasshopper eaters were met with in the mountains, and quantities of the grasshoppers were seen distributed over mats on the sunny side of hills, in the process of drying out. When the grasshoppers are thoroughly dry they are worked into various forms of dishes, with sweets and cocoanut meat, making what is to the natives a most excellent dish. But these natives seemed to be otherwise intelligent and particular as to their methods of eating and cleanliness, and in time could, no doubt, be trained to be good workers in the rich metal deposits in their country. Most of the natives realize the value of the minerals on their lands, but they are too lazy to work to secure the deposits. If there are indications of gold deposits, the natives habitually work about in the vicinity and obtain what metal can be easily removed from the surface. It is very seldom, however, that they proceed in the effective American fashion for getting out the gold, and consequently they secure very little.

The apparatus at present employed for what little mining is done in the Philippines is very crude indeed. Some of the machinery was made more than 200 years ago, and continues serviceable only because it consists of but few parts, and these are mere pieces of hard wood arranged with split bamboo for a sieve, or a couple of iron rolls in stout hardwood beams for crushing purposes. No doubt, if Americans were to bring the proper kind of modern mining machinery to this country, they could make a great deal of money. The natives have been known to bring down gold-containing quartz from the mountains and exchange it for a few trinkets or pieces of fabric from the stores, not knowing the value of the metal. They have no means for working quartz and are only too glad to exchange a cart load of it for a few dollars' worth of inferior textile goods or fancy articles. The native merchants who procure the quartz sometimes manage to dispose of it profitably to some one who knows its value and who will ship it to some country where the gold can be obtained. Very often, however, the quartz is simply used as relics or as ornaments about the native merchant's store and house, he, as a rule, not knowing what to do with it, or its real worth.

Should Americans establish mining enterprises in the Philippines they would be surprised at the cheapness with which good labor may be secured from among the native population. The mountain classes of natives are all strong, and they know what a day's work is. These native young men, having long since tired of warfare, are only too glad to get steady employment at the rate of 25c. per day, American money. The writer has seen large numbers of native farmers, plantation help, and others, engaged in the various industries of the islands, paid off at the rate of only 15c. per day, American money, and they seemed satisfied with the salary. Usually, when the pay is so low, the owner of the mine, plantation, or manufacturing industry, provides quarters for his help and also furnishes them with rice, the cost per day per man being about 8c., American money. One reason why the country has always been at war is the lack of something for the young men to do to keep them out of harm. The native can live without working in this country because a small bamboo shack will afford him lodging, and he can build this himself. He requires only a shirt and trousers for clothing, and for living he can step into a cocoanut or banana grove or a rice field and procure all he wants to eat. This, of course, encourages laziness, and to pass the time away the native young man sometimes engages in war. If there were more mining enterprises in operation, more young men would be given work, and the warring elements would, in time, cease for lack of fighting material. Therefore the military authorities of the islands are doing all they can to encourage the establishing of mining and general manufacturing enterprises, and if any capitalist were to start mining here he would find that his property would be amply guarded by the military.

CHITWOOD HOLLOW, IN THE JOPLIN DISTRICT, MISSOURI.

The time of working in this country differs from the time in other countries in that the intense heat of the middle of the day prevents hard labor, and usually the natives rest from 11 o'clock in the forenoon until 2 o'clock in the afternoon, and work later at night or begin earlier in the morning to make up for it. They manage to work 10 to 11 hours per day.

One of the important factors concerning the operation of a modern mining enterprise in any country is the care of and the repair of the machinery. There are from 1 to 5 or more machine shops in every city and town in the islands, but the equipment of machinery in these shops is very limited, and what there is of it is very ancient. They have no boring devices except such as can be worked by hand. There are no planers, cutting tools, turning lathes or anything of the kind, although the Government shops at Manila, Iloilo and other important points have put in some of the most important metal-working tools and machinery. The mining managers would have to bring with them their repairing and constructing machinery and put up a little repair shop of their own.

The principal gold mines are in the province of Camarines Norte, where this metal has already been taken out and sent to other countries for working. The mountain tribes have for many years brought gold nuggets out of these and surrounding provinces, but, as a rule, the natives will not disclose to foreigners the precise locality. In the Island of Mindanao there has been considerable prospecting lately, with the result that many parties have returned with encouraging reports of what they saw and what they found. A great many claims were staked off for future working. The leading points at which gold was discovered are in the vicinity of Tagsulip, Misamis and Cuenca. In the provinces of Benguet and Lepanto both gold and silver were found. On the Island of Luzon gold has been discovered in several places, and usually in profitable working quantities, but lack of proper facilities for handling the output prevented the members of the prospecting parties from doing much more than staking claims and securing samples and descriptions of the conditions. In the Baler Mountains a great deal of gold was located and some fine specimens secured and exhibited. The rivers of Ango, Santa Maria and San Jose contain gold deposits in the sands on their banks.

In the district of Paraclae, in Camarines Norte, there is already a profitable copper mine in operation, and there is said to be ample opportunity for establishing additional mines there with the chances of good success.

It was only a few years ago that systematic geological research was begun in the many islands of the Philippines, and the progress of operations has many times been stopped by wars. It was always considered dangerous for prospecting parties to go very far into the mountains, and the bones of many daring men are up in the hills now as a result of going too far into a country where white men were still unknown. Up to the present time only a very small proportion of the country has been prospected by any except the natives, and in most instances the native prospectors would pass right over a mine and not know it, unless there were liberal signs of the metal on the surface. They possess no instruments for testing, and would not know gold when they saw it unless the metal happened to glitter and thus attract their eye. The portions of the islands which have thus far been investigated by trained miners and experienced mining engineers present a very encouraging prospect, and if the metal exists in unexplored sections in the same proportion as they exist in the sections already explored, these islands must be very rich in minerals. There are thousands of extensive unexplored ranges of hills and mountains on all of the islands of the group that probably contain more or less quantities of metals, and which, in time, will be discovered and worked.

There is a plant at San Isidro, Luzon Island, for the working of petroleum, and this article has been found in quantities in the Island of Panay near Iloilo, and on the Island of Cebu. There is a great demand in all of the islands of the group for petroleum oil for lighting and general purposes of cooking. The present cost of the oil is exceedingly high and it is usually sold in bottles, quart bottles retailing at 10c. each, American money. This makes it costly to have lights burning to any great extent, yet the natives use the petroleum oil very freely. Their oil account is often one-half their expense of living. Some good oil plants, if established in this country, would bring the price of oil down to the proper level. At present the oil plants in operation can barely more than furnish oil for the markets in their immediate vicinity, and the oil consumed in all other places on the islands comes from Russia and the United States.

THE TRANSVAAL MINING INDUSTRY FOR THE SECOND HALF OF 1899.—V.*

Special Correspondence of the Engineering and Mining Journal.

(Continued from Page 378.)

The gold production for the month of January, as reported by the State mining engineer in charge, was from 10 mines. Of these, five worked by the Government directly, reported the following production: Robinson, 21,629 oz.; Ferreira Deep, 13,301 oz.; Rose Deep, 11,322 oz.; Bonanza, 10,361 oz.; Langlaagte Deep, 2,844 oz.; total, 59,457 oz. The five mines worked by their owners, under Government supervision, reported the following results: Village Main Reef, 10,758 oz.; Ferreira, 8,069 oz.; Wemmer, 6,207 oz.; Crown Reef, 5,086 oz.; Worcester, 1,218 oz.; total, 31,338 oz. This makes a total production for the month of 90,795 oz. of crude gold. The bullion from the Robinson Mine is fine, but that from some of the other mines is somewhat too base to be used in the Pretoria Mint. Under Government direction, therefore, a gold refinery plant was established by Mr. W. Bettel, where the bullion from all the mines has since been refined and sent directly to the Mint for use in coinage.

By a Government decree, which was issued under date of January 30th, it was ordered that the war tax of 1896 should be suspended for the present, owing to the impossibility of collecting it. A special war tax was imposed on land and other property, at the rate of £2 per 100 morgen, and of £5 upon each erf or part of an erf, greater than one-half, and of £2 10s. upon each part of an erf less than one-half. The decree also provided that where property belonged to a person living abroad; to a company or syndicate, or to a trustee or party in charge of the property for an absentee, the tax could be collected in the summary manner provided by the law of 1896. The only exception made to this rule is in cases where the property might be owned by burghers absent on actual service in the army.

Very shortly after this decree was issued, notice was received in Johannesburg of a proclamation by Sir Alfred Milner, British High Commissioner for South Africa, which reads as follows:

"Notice is hereby given that the Government of Her Majesty will not recognize as valid or effectual any forfeiture of any property situated in the territories of the South African Republic or Orange Free State, or any fines or incumbrances of whatsoever description declared, levied or charged upon any such property; or any conveyance, transfer or transmission of any such property, which forfeit, charge, fine, incumbrance, conveyance, transfer or transmission has been or shall be declared charged, levied, created, made or carried into effect by the Government of the South African Republic or of the Orange Free State subsequent to October 10th, 1899."

The following regulations were also issued by the High Commissioner effecting banks in South Africa, having branches or business relations with the Transvaal or the Orange Free State. These regulations were published throughout the Cape Colony and in Lourenco Marques:

"1. No draft or telegraphic or letter transfer, by or from any branch of the bank in which the regulations are posted, or any other bank situated in the South African Republic or Orange Free State, is to be honored.

"2. No note of the National Bank of the South African Republic, Netherlands Bank, and National Bank of the Orange Free State are to be paid, negotiated or advanced against.

"3. No overdraft is to be granted by any branch outside the republics in favor of burghers or persons resident in either republic, or on the guarantee of such persons in favor of third parties.

"4. No letters of credit issued by persons or firms in the republics are to be recognized or in any way made the subject of dealings by banks or their branches, and no advance is to be made on the produce of either republic.

"5. No checks, bills of exchange, or promissory notes, drawn on or domiciled in or made by burghers of either republic, or by any person or persons or firms residing in or trading in either republic, are to be negotiated or discounted or sent for acceptance or collection, and no advance by way of overdraft or otherwise is to be made against such checks, bills of exchange or promissory notes.

"6. No transaction of any kind which appears likely to result in aid or assistance to the Queen's enemies is to be entertained."

It will be remembered that the Robinson Bank of Johannesburg suspended business by the direction of the Government shortly after the opening of the war. Later, negotiations were begun between the representatives of the bank in Johannesburg and Mr. J. F. de Beer, chief inspector of offices. In view of certain representations made, and guarantees given, permission was accorded for the bank to resume business. Mr. de Beer issued the necessary permits, and the bank resumed business on February 22d.

An important point with respect to the working expenses of the mine under Government charge was the item of native labor. If we take the report of one of the leading mines for the year 1897, we find that the cost of native labor was 20 per cent. of the entire working expenses, while that of food for the laborers was 3.4 per cent.; the two items together making 23.4 per cent. of the total. The year 1897 is chosen for comparison, as it was a period during which there was very little trouble with regard to the native workmen; the agitation caused by the Jameson raid had subsided, and the trouble which culminated in the present war had not yet begun. As is well known, there is considerable competition for this labor among the different companies. The natives generally work on an agreement for six months, and at the end of that period they usually desire to return home for a time. Very frequently, they come back to the mine, after an absence varying from three months to a year, but they never renew their engagements without some intermission. This makes a constant demand for new laborers, who are usually collected by agents and brought to the mines in gangs, the agents receiving head money or commission. The men are quartered in compounds or buildings belonging to the companies, and are supplied with food there. At one time, in 1897, competition ran up the wages to as high as £5 a month, but about the end of 1897 an agreement was made in which most of the companies joined, by which the price was fixed at £4 per month, with board and lodging. Certain companies have been especially favored in the matter of securing laborers, for the men know very well where they can expect the best treatment. Even those who have never been at the mines before are usually posted by others who have served one or more terms. Poor treatment of the men or an attempt to reduce their expenses in the matter of food, has proved to be very poor policy, since it has been found that the men will do much more work when well treated, and the mines which obtain a bad reputation often found it very difficult to secure the labor they needed. They are good workmen usually, and are quick to understand and obey orders, intemperance being their chief trouble. The importance of this question may be estimated when it is stated that early in 1899 there were 85,000 black laborers employed on the Witwatersrand, and the mines could have found employment for 15,000 more had they been able to obtain them.

When the Government commenced to operate certain of the mines, this question of black labor came up among the first. In most cases the men found in the compounds, or in Johannesburg, at the time, were obliged to stay. It was considered that the Government had a perfect right to compel them to work without pay, for the benefit of the State; and this consideration was especially strong when it is remembered that the Boers serving in the army receive no pay at all. To avoid difficulty, however, and to secure better work, the Government decided to pay them, and ordered that the rate should be £1 per month. At the same time it was ordered that no Kaffir laborer anywhere in the Transvaal should receive more than that sum. The officers in charge of the railroad, however, represented to the Government that they could not retain their men under these conditions, and the order was therefore changed so far as the railroad men were concerned, though the price for the mine workers who were confined in the compounds, and could not escape, was retained at £1. This, of course, would affect a reduction of nearly 75 per cent. in the cost of labor, which would be very apparent in the statement of expenses of the mines now in operation. Under ordinary circumstances there would be a falling off in the efficiency of the labor, but it is believed in Johannesburg that the Dutch officers, who are now in control, understand the management of the natives much better than the English superintendents and foremen.

*Previous papers in this series have appeared in the "Engineering and Mining Journal," March 10th, 1900, page 287; March 17th, page 317; March 24th, page 347; and March 31st, page 377.

A CLEAN-UP TROLLEY FOR GOLD MILLS.—A convenient device for gold mills, lately introduced by Fraser & Chalmers, consists simply of a trolley with cage and bucket, used for handling amalgam, shoes, dies, etc., when cleaning up after a mill run. The track upon which the device travels is suspended in front of the battery and leads into the clean-up room. This arrangement is very convenient and productive of economy in making a clean-up. It permits the work to be accomplished in one room under the supervision of the millman or superintendent, thus avoiding the losses likely to occur in conducting such operations in different parts of the mill. The trolley dispenses with manual labor in conveying amalgam and pulp to the clean-up room, or for moving shoes and dies. Its use is also evident in making repairs to the battery.

THE BATOPILAS MINES, MEXICO.

We have received advance proofs of a report prepared by Gov. Alexander R. Shepherd, for 20 years past general manager of the Batopilas Mining Company, which covers the operations of the mines for the years 1898 and 1899. This last has been a year of great importance to the company, because of the practical completion of the great Porifirio Diaz Tunnel, on which work has been in progress for a number of years. This tunnel was intended to connect the various properties of the company, to enable the managers to carry out the drainage and mining works economically, to utilize the great bodies of low-grade ore on the property and to continue systematic exploration for the bodies of high-grade ore believed to exist.

The Batopilas Mines are in the State of Chihuahua, about 250 miles from the city of Chihuahua and are 245 miles distant from the nearest railroad. Part of this distance is covered by a good road, the balance by mule trails which are kept in order by the company. The concession covers an area of 61 square miles and contains a number of mines which have been worked and a number of veins which have been located, though not yet developed. All these are valuable, chiefly for silver; but on the property there are also gold bearing veins, some of which have been worked by Mexican companies, of which the Cerro Colorado is the best known. The district has been konwon for 250 years, and for fully a century, from 1650 to 1750, when several of the mines were at different times in bonanza, very large quantities of silver were taken out. In fact the yield was large up to 1810, when the troubled times of the revolution set in, and in a few years the region was almost abandoned. Later several efforts were made to reopen the mines, but nothing was done systematically or on a large scale until the San Miguel Mine was bought in 1879 by Gov. Shepherd and associates, who organized the Batopilas Mining Company. The concession was extended later to its present size. The company has done a very large amount of work in opening and developing its mines, and especially in building the great tunnel, which was soon understood to be essential. It has also built a dam 764 ft. long across the Batopilas River at San Antonio, and a stone aqueduct 9,900 ft. long to carry the water. There is a fall in this distance of 54 ft., and over 500 H. P. can be obtained in ordinary seasons. Two mills have been built and other necessary buildings and machinery provided.

This is a very brief description of the work done; and it has been done with a very small working capital. Most of it has been paid for from the output of the mines. This method of working has necessarily involved delays, and progress has at times been very slow. As the Porfirio Diaz Tunnel is now completed, it is hoped that work may be extended more rapidly.

The report above referred to gives the total work done in the mines for the two years at 26,855 ft., of which 3,258 ft. was on the tunnel. The total ore taken out was: First class, 1,175,626 lbs.; second class, 2,727,196 lbs.; third class, 43,158,028 lbs.; total, 47,060,850 lbs., or 23,530 tons. The average value of the ore treated was $47.92 per ton. The gross product was, in bars, $839,719; in sulphides, $287,766; total, $1,127,485. The total payments were $1,317,888, of which the cost of the tunnel represented $139,718.

The report of Gov. Shepherd, as general manager, shows the present condition of affairs on the property, and the greater part of it is given below:

"With reference to the product of the mines, and in corroboration of the opinion always expressed by me that the opening of the Porfirio Diaz Tunnel would be the beginning of a new era in the company's history, I note that: In July, 1899, the tunnel was opened partly and ore began to be delievered through the Diez de Enero Shaft. For the first six months of 1899 the yield was $163,386, or equal to $1,047 per diem, counting 26 days to the month. For the following seven months, including January, 1900, the yield was $473,071, or equal to $2,599 per diem. The conditions in the other properties of the company were the same during both periods, being all in borra and hardly paying expenses; therefore, the comparative statement would seem to be a fair one, and the opinion warranted by the facts.

From the report it will be seen that: 1. The disbursements have largely exceeded the product and the floating debt correspondingly increased. 2. That is was not possible to pay the interest on bonds and continue improvements. When consolidation was effected in 1887 and 1888, it was supposed and intended that the $1,000,000 of bonds authorized would be sold and would complete the improvements. But only $459,700 bonds were sold, of which $358,700 was used in paying the debts of the several consolidating companies, leaving only $101,000 applicable to the improvements. The rest of the bonds, $540,300 remain in the treasury unsold, and have been used as far as possible as collateral for loans made to the company. The large yield of 1893 and 1894 paid up most of the debts contracted between 1888 and 1894 for improvements, leaving a comparatively small amount due. Since then to the present time there have been no bonanzas to help out, but the improvements have been driven as rapidly as possible, money being borrowed to continue them at the high rates of interest prevalent here. This was most unfortunate, but was the only thing to be done if the enterprise was to be made successful. The years 1898 and 1899 have brought about the virtual completion of the improvements commenced in 1885. There remain in course of completion:

"1. Connection between Porfirio Diaz Tunnel and Todos Santos veins and upper workings.

"2. Completion of 100-stamp mills by the addition of 35 stamps in Hacienda San Antonio and 10 stamps in Hacienda San Miguel. All these have been cast in the hacienda and are well under way. The 10 in the Hacienda San Miguel will be running in March, and those in Hacienda San Antonio before the rainy season in June.

"3. The completion of vertical shaft, hoists and cages in San Miguel. This shaft is used at present with single hoist and buckets, but cages and double hoist have been fitted up here and will be in position soon.

"As the mouth of the Porfirio Diaz Tunnel is much higher than the bridge, it was necessary to build heavy masonry walls, and to make a circular roadway to carry freight to and from tunnel. This has been done, the old dump enclosed, and the retaining wall extended to level of river road, on proper incline, turning all travel from the bridge to lower road, and insuring proper degree of privacy for the company's business. On top of dump, in front of tunnel, have been placed a corral for the 55 mules used in tunnel, a repair shop, portals, men's changing rooms, patio, etc., forming a compact arrangement of the space, with due regard to economy, appearance and effectiveness.

"Porfirio Diaz Tunnel, and pertenencias cut by it, made up to October, 1899, are shown in Map No. 1. This tunnel, begun in May, 1885, cut the Roncesvalles vein in February, 1899, at point shown on map, 7,035 ft. from mouth of tunnel. From point of junction, tunnel has been continued on the Roncesvalles vein; at 189 ft. from junction, tunnel connected with shaft known as Diez de Enero. This shaft was driven down from 535-ft. level of the Roncesvalles Mine, and has since been carried up to the main level known as Penasquito Tunnel, some 800 ft. above the Porfirio Diaz Tunnel. From this junction, tunnel was driven in Roncesvalles vein southerly 400 ft. to connect with Poso No. 4 of Roncesvalles workings. This poso had been sunk below 535-ft. level of Roncesvalles some years before, and the bottom of it was some 80 ft. above level of Porfirio Diaz Tunnel; it had a working on either side, filled with water and debris. These workings were connected, drained, and two shafts were established, one for ore, the other for a roadway and landings for exploration levels in the pillars between tunnel and 535-ft. level, for workings north and south.

"A similar double shaft for roadway was made alongside Diez de Enero shaft to 535-ft. level. Near this junction with No. 4 a cross-cut, nearly east, has been driven to cut the Todos Santos vein. This cross-cut is 230 ft. long at this date and within a few feet of the Todos Santos vein. From here the tunnel has been driven southerly 323 ft. It is to be driven on vein 204 ft. further to a point 1,116 ft. from original junction of tunnel and Roncesvalles vein; from there the second cross-cut to Todos Santos veins will be made, about 240 ft. eastward. Two posos have been sunk in bottom of Porfirio Diaz Tunnel, one 30 ft. and one 40 ft., to prove the vein. The tunnel has been also driven 200 ft. to the north from original junction of tunnel and Roncesvalles vein, but further developments there have been postponed for more pressing work. The No. 4 connections were not opened until November of 1899, and there is more work to be done in them.

"At upper Penasquito tunnel level the Todos Santos vein is over 500 ft. from Roncesvalles vein. On Porfirio Diaz Tunnel level (800 ft. lower), it is but 240 ft. distant, the incline being gradual. It runs parallel with Roncesvalles vein, and its condition at lower level is a matter of great interest and importance. It has given silver for a distance of 750 ft. on the course of the vein and is now, at its 600-ft. level, in heavy silver. There are to be three connections between these veins. Two I have mentioned on Porfirio Diaz Tunnel level, and the third will be on Penasquito level, for working in upper part of Todos Santos Mine, discharging through the Diez de Enero shaft. This connection only lacks about 60 ft. With these three connections between these two mines, all working will be done through the Porfirio Diaz Tunnel, and boilers and hoists dispensed with.

"The upper portion of Todos Santos was worked by the Messrs. Ford from 1880 to 1890, and it is estimated to have given them over $500,000. The lower portion of Todos Santos has yielded this company five times as much, as it has been the main reliance for many years while Roncesvalles was inacessible and San Miguel and other mines in borra. The hoisting of ore at present is very expensive and slow. The completion of these connections will probably largely increase yield and materially diminish cost of working. With these two mines connected there should be no doubt of our annual yield being sufficient to cover our needs.

"The Roncesvalles vein is being worked in various places, and the mine being gradually cleared of debris and ore which accumulated in former years. The ore taken out for several months has averaged 60 tons daily. We have not been able to clean it, as it was mixed with rock, but it has ranged from 5 to 20 oz. per ton, averaging 10 oz., with concentrations from 175 to 550 oz. per ton. As mine is cleared and connections made, systematic workings will be established and followed. There has been but little work done to the south in mine, and that is generally believed to be its best part. On the line of Porfirio Diaz Tunnel, before it reached Roncesvalles vein, two workings were made, one 400 ft., the other 40 ft. from junction. Some native silver was found in both, but as the working would interfere with others more important, they have been left for future exploration. The tunnel has cut many promising veins in its progress, but their exploration has also been deferred until a better opportunity occurs.

"The ore from Diez de Enero and No. 4 shafts is run from chutes into cars, holding each 3,000 lbs., and drawn by mules to the mill, about 600 ft. from mouth of tunnel, where it is dumped into bins and goes direct into batteries, with nominal expense of handling.

"The San Miguel Mine has been continuously and carefully worked, but yield has been less than expected.

"At present the workings in San Miguel Mine are as follows: 1. Vertical shaft and station for hoisting, at 14th level. 2. Cross-cut on 14th level from Giral to vertical shaft. 3. Cross-cut west on 14th level, 150 ft. south of Giral shaft, to the bottom of Santa Juliana Poso (bonanza poso of 1894). This poso has been driven on hanging-wall of Mesquite vein, to the 14th level, and is most promising. 4. On 17th level, south of Giral shaft, four workings are in progress, from which some handsome silver has recently been taken; they are promising. The water has been cleared from below 17th level of Giral shaft. 5. In San Antonio vein the main poso, 300 ft. north of San Miguel Tunnel, is being worked with fronts north and south, at a depth of 100 ft.; and 150 ft. above San Miguel Tunnel level, two fronts are being driven, north and south, for exploration.

"An ancient mine just south of San Miguel Tunnel, and adjacent to the Carmen vein, has been opened and extensive workings found. There is no record of this property anywhere, as far as known. The workings are large and well made, and a considerable quantity of ore has been taken from this mine. The present inaccessible portions of San Miguel Mine will be rendered susceptible of exploration by the vertical shaft; and when it is carried to 17th level, and farther, it will economize the taking out of ore and rock from that great depth. It is a fine shaft, and will be well equipped. There are several thousands of tons of

low-grade ore stored on the San Miguel patio, which will average 5 oz. per ton, but as the Roncesvalles and Todos Santos veins are much richer, there is no immediate prospect of any but high-grade ores being worked from San Miguel Mine.

"The workings in Descubridora Mine during the years 1898 and 1899 aggregate 3,815 ft., and the product from mine is about $25,000. An upper drift, over tunnel entrance, called La Esperanza, some 130 ft. above tunnel proper, was driven, and connections made with upper working, but results were unsatisfactory in spite of great promise. It served a good purpose for ventilation, however. Much work has been done on 460-ft. level, which is near bottom of mine, where vein is wide, giving a quantity of low-grade ore. In 300-ft. level, work has been done, and the old San Francisco vein, for a long time lost, is being worked vigorously, with fair results. The 150-ft. level has been driven north and south without result. At present this mine is more than paying expenses.

"In August, 1898, a cloud-burst filled up completely the arroyo in front of San Antonio and the mouth of mine, and nearly buried the mouth of Camuchin Mine, or Washington Tunnel, which lies some 300 ft. lower down the arroyo. The tunnels were cleaned out, and in the early part of 1899 I began working them on shares with several of the miners who were unfitted for work in deep mines. A major domo is placed in charge, and company receives one-third, gross, of product; the workings are under company regulations. So far the plan has worked well.

"Nearly 600 ft. of exploration workings have been made since last report. In the silver veins these workings have been principally on the Dolores, Obra Cruz, Obra Chon, Ford Shaft, San Ygnacio and Las Canuelas; and on the gold-bearing veins in the Mirasoles and Satevo districts. No bonanzas were found, but many veins of value were discovered, which will well repay working when circumstances permit.

"Before tunnel was completed I occupied some of our best gambucinos or prospectors, in hopes that a find might occur which would relieve our needs, but this was unsuccessful. When railroad connection is established, a large revenue will be possible in leasing properties in concession; at present the force is inadequate for our own needs, and freights too high ($100 per ton and upward). to encourage much exploration and development.

"In Hacienda San Miguel the additional 10 stamps have been placed and will soon be running. They are all of stone and iron, no wood except posts and braces being used. The foundry has done good work. All of our castings have been made here, including stamps and batteries in San Miguel and San Antonio haciendas, and the renewals, repairs and hoists for San Miguel and other mines. We had accumulated much old iron during our years here, and a large amount had also been accumulated by the Cerro Colorado Company near here. A satisfactory arrangement for their old iron, payable in castings at fair prices, when needed, has enabled us to build all our new plant without purchasing pig iron; the only iron which we have bought being the wrought-iron stems, shafting and bolts needed. The importance of this will be understood, as freight costs more than the castings, and only sectionalized castings, weighing under 300 lbs., can be brought in on mule back.

"At Hacienda San Antonio the heavy retaining wall of present 40-stamp mill has been extended and carried to level of ore patio. This will accommodate the additional 35 stamps, and give a concentration room, so that concentrates will be handled by elevator to upper patio and loaded directly into carts. The wall is 7 ft. at base, 5 ft. at top and 140 ft. long. Below, and in line with present 40 stamps, 7 batteries of 5 stamps each are being erected. These batteries are of stone and iron, except posts and braces, which are of wood. Of the present 40 stamps, 10 have been rebuilt, new blocks and castings substituted for the wooden ones, which rotted out in four years' use. The substitution of iron for wood was necessary, as the life underground of the foothill pine found here rarely exceeds 4 to 5 years, while expense of renewal, as well as loss of time in repairing, is great. The river wall has been raised to level of concentration patio and filled in to the level of patio, with slimes from concentrators, putting them beyond danger from freshet, and placing everything in sight of mill superintendent. A workshop for mill repairs is being built, adjoining concentration room; also sleeping rooms for men in charge. I expect to complete mill with 75 stamps by the rainy season, so as to have the benefit of an abundant supply of water. At present water in river is low, owing to lack of winter rains. Under fair conditions these 75 stamps should earn over $1,500 daily."

Map of Batopilas Mines, Showing Course of Porfirio Diaz Tunnel.

The first of the accompanying illustrations is a map showing the company's mining claims and the course of the Porfirio Diaz Tunnel. The second is from a photograph of the Batopilas Valley, looking south from the San Miguel Mine. The San Antonio aqueduct is shown on the right, and the road from San Miguel Mine to the hacienda on the left. The third view is also from a photograph, and shows one of the company's mills—the Hacienda San Miguel—as it appears from the west bank of the river.

MICA MINE LEASES IN INDIA.—"Indian Engineering" says: "The lease of five well-known valuable Government mica mines in the Hazaribagh District was put up to the highest bidders a short time ago. The mines were on this occasion knocked down for 31,250 rupees. The rest of the mines put up for sale were unimportant, and fetched small prices. There is a growing keen competition for these leases."

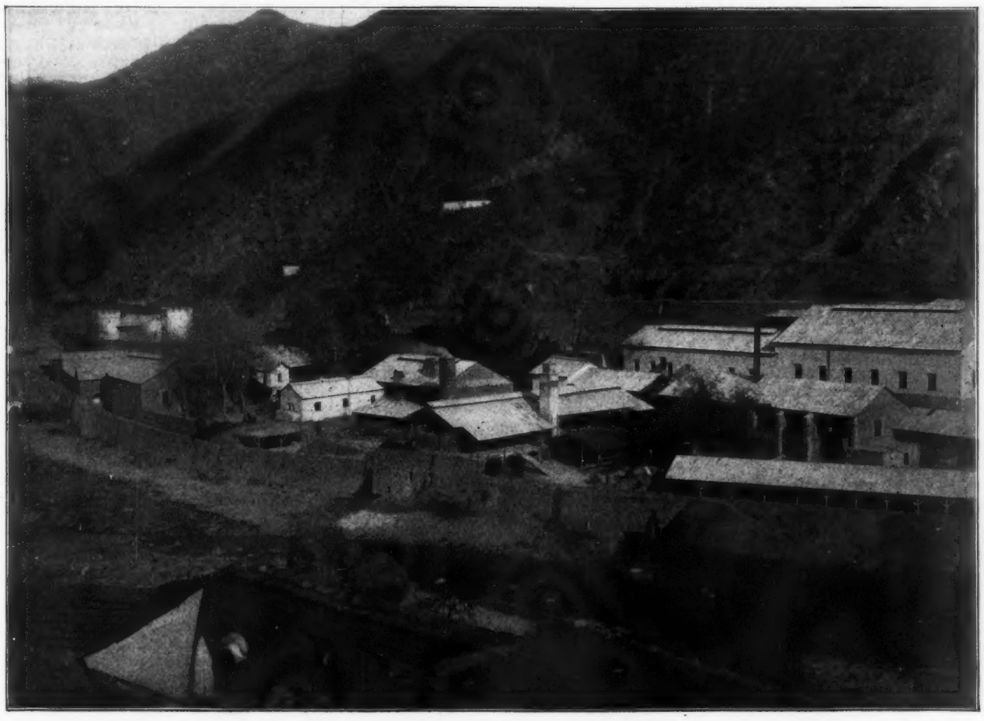
ABSTRACTS OF OFFICIAL REPORTS.

Isle Royale Copper Company, Michigan.

The report of this company for the year ending December 31st, 1899, shows that on April 20th last the Isle Royale Consolidated and the Miners' Copper Company were united under the present name. The cash on hand at the date of the consolidation was $1,794,069; receipts for interest, $23,057; making a total of $1,817,126. Payments for mine work, machinery, etc., were $330,677, leaving a balance of $1,486,449 on hand December 31st.

In the mine No. 1 shaft was sunk 281 ft. and No. 2 was sunk 235 ft., both being down to the 12th level. Skip roads have been completed and air pumps put down. The total length of drifts opened is now 9,274 ft. The lode opened has been of good average character as to copper contents, all of the drifts showing stoping ground.

At shaft No. 1 during the year a Nordberg air compressor with steam cylinders 18 and 32 by 42 in. and air cylinders 17¾ and 27 by 42 in. was erected; also a hoisting engine with two 32 by 72-in. Nordberg Corliss engines. Two boilers were also set up. At shaft No. 2 engine house, boiler house and hoisting house were built. A pump house was built at the old Huron dam and 6,700 ft. of pipe line put down. A railroad 3 miles long was built, laid with 65-lb. rails and equipped with a locomotive and 6 flat cars. A dock 600 ft. long was built to deep water on Portage Lake. Necessary dwelling houses were built. Work on the stamp mill will be begun this spring, and contracts have been let for the machinery.



HACIENDA SAN MIGUEL, BATOPILAS MINE.

BATOPILAS VALLEY LOOKING SOUTH FROM SAN MIGUEL MINE

Ymir Gold Mines, Limited, British Columbia.

The first report, just issued, by the Ymir Gold Mines, Limited, covers the period from the incorporation of the company, August 29th, 1898, to the end of 1899. This company was formed to take over as a going concern the Ymir and three other claims in Wild Horse Creek, West Kootenay, B. C., from the London & British Columbia Gold Fields, Limited. The purchase price was entirely in shares and no additional working capital was subscribed at the time. Operations did not commence until April, 1899, and the total time during which the extraction plant was working during the year did not exceed six months. The 40-stamp mill treated 17,522 tons, from which was produced altogether 8,432 oz. gold, 24,968 oz. of silver and 326 tons of lead, or 0.481 oz. gold, 1.431 oz. silver and 1.861 per cent. of lead per ton. The ore is first picked by hand for the rich galena, then stamped, and then the concentrates collected on Frue vanners. The hand-picked ore amounted to 385 tons and yielded 1,637 oz. gold, 9,657 oz. silver and 135 tons of lead. The ore milled amounted to 17,137 tons, and in the mill were recovered 5,591 oz. gold and 3,862 oz. silver. The concentrates weighed 1,026 tons and yielded 1,203 oz. gold, 11,449 oz. silver and 191 tons lead. The total proceeds of ore treated was £43,450, and the cost of mining, milling and other expenses in British Columbia was £20,100. Other expenses and allowances for depreciation were £3,500, so that there was a profit of about £20,000 on the six months' operations. Out of this a dividend absorbing £10,000 has been paid, while the remainder is being kept in hand for the expenditure on plant and tunnelling. The analysis of expenses show that the cost of stoping is $1.60 and milling $0.76 per ton. Since the property was acquired 1,522 ft. of development work have been done, in addition to 4,186 ft. of work done by the London & British Columbia Goldfields. The total amount of ore blocked out and still on reserve on December 31st, 1899, was 121,600 tons, but the character and estimated contents are not given. The prospects are, however, so excellent that a new main working tunnel for opening up the vein at a depth of 1,000 ft., or 600 ft. below the present lowest workings, has been commenced, and the milling plant is being doubled by the erection of 40 more stamps. No further capital is required for this work as the expenses are being met partly out of income and partly by a temporary loan of £15,000 repayable in a year's time. The directors are fortunate in being able to report that the strike which, at one time, threatened to stop operations is at an end. Mr. S. S. Fowler is to be congratulated on the excellent way in which he has opened up the property and arranged for the best method of treating the ore. Both preliminary and operating expenses have been kept within reasonable bounds. This is, perhaps, as well a managed mine as any in British Columbia owned in England. Certainly the information supplied to the shareholders in the report is the fullest and most satisfactory.

Daly-West Mining Company, Utah.

This company owns a mining property near Park City in Summit County, Utah; the report is for the year ending December 31st, 1899, and is to be commended for the full and clear statement given of the operations and the condition of the property. The mines and mill were described and illustrated in the "Engineering and Mining Journal," October 14th, 1899, page 455.

The total receipts from all sources for the year were $569,736. Payments—including $14,259 for purchase of Silver Lake Water Company, $108,963, for purchase of Morgan Mining Company, and $120,000 for dividends—were $517,086, leaving a balance of $52,650.

The development work done during the year was as follows: Shaft sinking, 40 ft.; drifts, 3,160 ft.; upraises, 760 ft.; winzes, 130 ft.; total, 4,090 ft. The total amount of openings in the mine is 19,497 ft.

The report says of the mining and milling results that the crude ore treated was 17,169 tons, which contained 10.3 per cent. lead and 20.3 oz. of silver per ton, from which 90 per cent. of lead and and 68 per cent. of silver was saved. This crude ore was reduced to 4,785 tons of concentrates, with an assay value of 33.46 per cent. lead and 49.8 oz. silver, per ton, which was sold to the smelting company for $194,572. This ore also contained a small percentage of gold and copper, which was paid for and is included in the above amount. All of the tailings from the mill during this period were caught and stored in reservoirs for future treatment. There was mined of first-class ore 7,792 tons dry weight, which contained 495,485 oz. of silver, 3,988,891 lbs. lead, 461,288 lbs. copper and 406.63 oz. gold, which sold for $334,445; sales of concentrates were $194,572; making total ore sales of $529,017; to this add ore in bins, 414 tons at $40.27, making $20,704; giving a total production of $549,721. All mining and milling expenses were $147,076; sampling and assaying, $9,974; cost of extracting 4,000 tons or ore on dump, January 1st, 1899, at $3.69, was $14,760; making a total of $171,810. This leaves a net profit from operation of $377.911, or 68.76 per cent. of the gross earnings.

The average value of crude ore sold was $41.95 per ton, the average contents per ton being 0.05 oz. gold, 62.14 oz. silver, 25 per cent. lead, 2.72 per cent. copper and 24.24 per cent. zinc. The average value of concentrates sold was $38.57, the average contents per ton being 0.05 oz. gold, 49.80 oz. silver, 33.46 per cent. lead, 1.79 per cent. copper and 14.2 per cent. zinc.

The statement of mining and milling costs given is as follows:

Extracting	21,655 net tons at $3.69	$80,045
Concentration	17,169 net tons at 1.55	26,681
Prospecting	21,655 net tons at 0.78	16,822
Hauling	12,757 net tons at 0.89	11,416
Sundries	21,655 net tons at 0.56	12,112
Operating expenses per ton	$7.47	$147,076

The report of President John J. Daly says: "After a lengthy correspondence and considerable delay, the Union Pacific proposed that if the Daly-West Company would provide the right of way through Park City, free of all cost to the railroad company, they would build a spur, or branch of the road up to the mouth of the drain tunnel. This proposition was accepted and the right of way was secured. I have an understanding with the railroad company to the effect that the freight charges on ore from the mouth of the drain tunnel shall not be any more than it was when the ore was delivered at the old terminus. In addition to this I have made an agreement with the Ontario and Daly Mining companies for the use of their tunnel which connects the Daly-West main shaft at the 1,200-level, for the transportation of ore and supplies. In order to facilitate the handling of ore and supplies through the tunnel, considerable work in the way of improving, straightening out and retimbering, what will be the main thoroughfare or tunnel, from the Daly-West main shaft to a point in the Daly Company's ground near their shaft No. 1, was necessary. At this point connection is made with the drain tunnel proper. A railroad track has been laid and everything made ready for the transportation of ore and supplies along this new route. The drain tunnel proper was put in good condition for transportation purposes some years ago, consequently very little work was necessary to place this part of the line in good shape. The delay and uncertainty in consequence of bad roads, which have always had to be taken into consideration in the past, is now eliminated. Under the old method of transportation by team, the contract price has been as follows: For ore from the mine to depot per ton, 85c.; for up freight, coal, etc., per ton, $1.40. I have let a contract for the ensuing year, for the transportation of all ores from the mine to the mouth of the tunnel, at which point the ore cars will be unloaded into the railroad cars, to Kopp Brothers for 15c. per ton. This includes the transportation of supplies up to the mine from the mouth of the tunnel. An agreement has been made with the Ontario and Daly companies, to pay a royalty not to exceed 10c. per ton for all ore and supplies passing through the tunnel, making the outside total cost of transportation of ore and supplies 25c. per ton, as against 85c. and $1.40 per ton respectively. . . .

"Reference has already been made to the fact, that during the past year the suspicion that the Anchor Company had taken a large quantity of ore from the Daly-West ground was confirmed. The fact that the ore had been extracted by the Anchor Company having been established to an absolute certainty, I directed that a suit be filed against that company for $200,000 for the value of the ore taken. The suit was accordingly filed on June 20th, 1899. In order to determine as nearly as possible the extent of the trespass and the amount of ore taken from the Daly-West ground by the Anchor Company, a survey was made in August last by Mr. L. G. Burton, who represented the Daly-West Company and Mr. C. P. Brooks, representing the Anchor Mining Company, both of whom are mining engineers. This was in pursuance of a mutal agreement between myself, on behalf of the Daly-West, and the proper representatives of the Anchor Company. In his report Mr. Burton states that the Anchor Company has taken from Daly-West ground, as shown by the excavations found, 93,690 cubic feet of ore. This only includes such places as could be easily found. A thorough search and measurement will rather add to than decrease the sum total of the ore tonnage thus mined."

CARBORUNDUM IN STEEL MAKING.—In a paper published in "Stahl und Eisen," Mr. Fritz Lurman discusses carborundum as a substitute for ferro-silicon in steel making. The substance in question is, it will be remembered, a product of the electric furnace. Its composition averages 62 per cent. silicon, 35 per cent. carbon, 1.5 per cent. iron, and 1.5 per cent. aluminum, together with traces of calcium and magnesium. It is quite free from sulphur and phosphorus. It is, moreover, an endothermic body, and yields a considerable amount of heat when decomposed. In use, 88 lbs. of it are equivalent to 550 lbs. of ferro-silicon, but at present prices it, the latter, is more economical.

A NEW PROCESS OF BRICKMAKING.—A rapid process of brickmaking is now being worked at Coswig, in Germany, being the invention of Mr. W. Olschewsky, a Russian engineer. The London "Engineer" says that the bricks are made of a mixture of slacked lime with sand, and are moulded in a press. They are then exposed in a closed chamber to steam, at a pressure of about 100 lbs. per square inch for a period of 12 hours. The proportions of sand and lime vary with the kind of brick to be produced, the content of the last-named ingredient having an extreme range of from 4 to 10 per cent. of the total. The bricks in question have a specific gravity of about 1.88, and a crushing strength of 220 tons per square foot, and are porous, absorbing 13 per cent. of their volume of water on immersion.

IRON AND STEEL MAKING IN INDIA.—The Indian Government has published a report on this subject, made by Major R. H. Mahon. Considerable deposits of iron ore are, he states, available, those in the Madras Presidency being the best in point of quality. Limestone can also, he states, be obtained, among other quarters, from the Andaman Islands, where there are enormous deposits of sea shells. As to fuel, early experiments with Indian coal were far from favorable, as the coke produced was soft and friable; but more recent experiments have shown that certain collieries produce coal from which an excellent coke can be prepared. On the whole, Major Mahon thinks that steel works started on a sufficiently large scale, and equipped with modern machinery, would, in all probability, pay well.

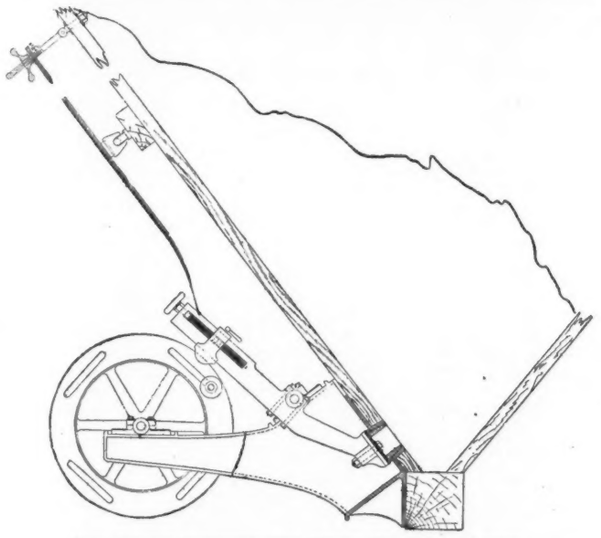
HEAT FROM EXPLOSIVES.—In a note to the "Journal of the Society of Chemical Industry," Mr. Oscar Guttmann draws attention to a remark of Heise, who points out that on account of the suddenness of an explosion the surrounding air may be so highly compressed as to be heated to a very high temperature. Thus, a compression of 200 atmospheres would cause the temperature to rise to 1,060° C.; and since explosives in bore holes can exert a pressure of 6,000 to 8,000 atmospheres, the heat produced by this compression would of itself suffice to ignite a gaseous mixture in the neighborhood. Some experiments confirming this view are summarized by Mr. Guttmann. Two cartridges of an ammonia nitrate safety explosive were suspended a short distance apart and fired simultaneously, a photograph being taken at the same instant. There showed a luminous flash at the meeting place of the two waves of explosion, which is attributed to the air at this point being so highly heated by compression as to become luminous.

THE AYTON INTERMITTENT THICK PULP EXTRACTOR.

The accompanying illustration shows a section of a new device made by Fraser & Chalmers, Chicago, which seems very well adapted for its special purpose. It is intended for use in connection with pointed settling boxes. Its function is to recover the pulp coming from Chilean mills, stamps, etc., in a thickened condition and of a consistency suitable for pan amalgamation, or subsequent systems of ore treatment requiring a continuous supply of thick pulp or tailings. A pointed settling box, 10 by 10 ft. by 8 ft. 6 in. deep, would be of suitable proportions for the application of the pulp extractor, securing even surface currents and a uniform slope of 60° for each side of the box. Such a box would have a delivering capacity of from 8 to 10 tons of thick pulp per 24 hours.

The construction and operation of the Ayton pulp extractor are briefly as follows: A valve is secured to the point of the settling box, the movement of the valve being controlled by a lever held in position by means of a spring and actuated by a cam movement. The extent of the valve opening and the frequency of the periods of discharge are regulated by adjusting devices. The pulp is allowed to settle or collect at the point of the box for a short period, when the valve opens and a portion of the thick settled pulp is allowed to escape, the valve being closed so quickly that the supernatant watery pulp does not reach the level of the discharge opening. This method of intermittent discharge combines the advantages of a comparatively large opening with a limited flow of water, so that the thickness of the discharged pulp can be maintained, and the danger of obstruction of the pipes, together with the obvious disadvantage of a small opening under the full head of the settling box, which are attendant upon the use of a siphon discharge, are obviated.

The following exhibit of results at the Bote Reduction Works, Zacatecas, Mexico, is of interest, as it shows the efficiency of the device in actual practice. The capacity of the Bote Mill is from 70 to 75 tons per day; 6 Chilean mills effect the reduction of the ore, which requires mixture with from 85 to 90 per cent. (by weight) of water. The thin pulp thus obtained is run into 8 settling boxes, which return to the Chilean mills from 78 to 87 per cent. of practically clear water, while the pulp extractors deliver a continuous supply of pulp, containing more than 50 per cent. of dry ore, to the pans. A number of samples taken at intervals during June and July, 1899, showed a general average of 59.5 per cent. dry pulp.



THE AYTON INTERMITTENT THICK PULP EXTRACTOR.

THE BARD ADJUSTABLE BUSHING.

The accompanying illustration shows the Bard adjustable bushing, a new appliance for use with die stocks of all sizes. The bushing is fitted with three hardened jaws which are moved to and from the center by means of a cam plate, and by fastening the plate with the thumb screw the jaws are firmly held in any desired position. The bushing is made to fit any die stock in place of the common ring bushing, and adjusts to all sizes of pipes and bolts. The adjustable jaws always make a center for the pipe, and insure cutting a straight thread. This is a decided improvement over the old bushings. Of course when necessary a crooked or "drunken" thread may be cut with this bushing as easily as with the old ring bushings. When once attached to the die stock it may always remain there, being adjustable to any size of pipe or bolts that the stock will thread. It thus does away with the necessity of carrying a number of loose ring bushings with each stock, and saves all the time lost in hunting for, and changing, the bushing for each different size of pipe or bolt. In threading short nipples with this bushing, it is never necessary to file down the couplings of the nipple holder as it is with the ordinary bushing. All this trouble and delay is overcome by the adjustable bushing which it fitted to any size. The adjustable bushing guides the pipe to the center and insures a straight thread; it may always be left in the stock and is adjustable to any size of pipe or bolts that the stock will thread. The Bard bushing is manufactured by the Armstrong Manufacturing Company, of Bridgeport, Connecticut.

THE BARD ADJUSTABLE BUSHING.

THE PLACER FIELDS OF CUSTER COUNTY, IDAHO.

Written for the Engineering and Mining Journal by C. C. Clawson.

A quarter of a century and more ago, the Salmon River and its tributaries, in what is now Custer County, Idaho, were literally swarming with prospectors in search of gulch and bar diggings, from as far down as the present town of Challis to as far up as Stanley Basin. At Robinson Bar, below the mouth of Yankee Fork, and at the mouth of Warm Spring Creek, extremely rich gravel bars were found on both sides of the river, and for a number of years large yields of coarse gold were obtained by drifting into the high bars and back channels. At favorable points on the river, wing-dams were constructed during low-water season, which enabled the miners to work the lower gravel deposits with good results. Nearly all the streams and gulches flowing into the Salmon from either side, gold was found wherever prospecting was done to any extent.

Even in those early days, Stanley Basin was classed as a poor man's camp. Every little tributary and dry ravine had its rockers going, and the yield in many instances was almost fabulous considering the primitive methods in vogue for separating the gold from the sands and the gravel; and for years after, the easiest ground was worked. In the fall of 1869 and spring of 1870, Loon Creek, a tributary of Middle Fork of Salmon, began to attract the attention of miners and prospectors far and near. This stream is located about 20 miles from Yankee Fork and heads north of Jordan Creek. Much of the creek bottom was immensely rich in coarse gold and of high grade, with rough slate bed-rock to hold the gold in quantity. A few years later, after the Yankee Fork and Jordan Creek camps had come into notice as placer and quartz camps, Loon Creek was deserted by white miners for the rich pay had been in most part extracted; but many Chinese miners remained to work over the poorer ground until the Indian raid of 1879.

During the prosperous days of Loon Creek prospectors struck out from there in search of new fields, and soon gold was found on Jordan Creek, a tributary of Yankee Fork and near the present town of Bonanza. About the same time, gold was discovered on the flats and high bars of Yankee Fork for a distance of several miles below Jordan Creek. As the river bottoms are wide and flat, the mining was confined mainly to the rimrocks and surface as deep as water would permit, generally but a few feet, but no drains were opened to the bottom. While the gold was of a coarse character, ranging from medium fine to nuggets of good size, indicating a bed-rock pay streak, the claims were soon pretty generally abandoned and left for those who might come later with time and money to open and exploit. Still, in some instances, good wages were made with rocker and sluice, and mining on the surface has never been entirely abandoned along the Yankee Fork.

Jordan Creek was located for a distance of 5 miles up from the Yankee Fork, to base of Estes Mountain and Capitan Hill, where later some famous gold quartz veins were discovered. At different places along the creek, pits were stripped to bedrock and the bottom gravel sluiced, and for a number of years the miners made money in this way; but the ground being from 15 to 18 ft. in depth and expensive to open, gradually the claims passed into few hands and now the creek is owned by half a dozen individuals. James Steen owns one mile from the mouth up; J. W. Faulkner, 2 miles next above Steen, and is opening his ground with a bed-rock drain; Horsely & Rankin own the next mile and have a bed-rock flume under way; and G. B. Baldwin & Co. have a ditch and hydraulic on the upper part of the creek to work the bars. The creek has been worked sufficiently at different points to prove its richness, and the time is not far distant when the whole of the ground will be opened and worked by bed-rock flumes, and possibly, dredges.

Some of the largest nuggets unearthed in Idaho have been taken out of Jordan Creek ground. One weighing 32 oz. was found ½ mile above the mouth of the creek, and numbers have been found weighing a pound and over, while many weighing from 1 to 10 oz. have been washed out.

After the discovery of such gold and silver quartz mines as the Charles Dickens, General Custer, Lucky Boy, Montana, Badger, Yankee Fork,

and others in the Yankee Fork District, placer mining was almost forgotten for the time. Even a well constructed ditch with a capacity of 800 in., 4 miles in length and costing much money in those days of high prices, had just been completed for the purpose of working the high bars on the west side of Yankee Fork when the quartz furore broke out, and it too was abandoned; and for years afterward the placer mining industry of the Upper Salmon River country was under a cloud. But years later, when many of the best veins had given up their surface ore shoots, miners and prospectors began to look with kindly eyes upon the rejected placer deposits again. The old mines of Stanley Basin and vicinity were reclaimed and more modern appliances adopted, and the product of gold dust from that section of Custer County increases with each year, while much of the best ground remains to be worked.

Of the south side of Salmon, below Stanley, several new gulches have been recently opened that promise to be profitable producers. The river bars and bottoms below Stanley are also found to prospect well in many places, but this time not with pan and rocker; the dredge and hydraulic will hereafter handle the auriferous gravels.

On the head of Warm Springs Creek, a tributary of the Salmon, placer mining in the small streams was successfully carried on for years. Last season, a company from Challis located the whole of the Fisher Basin, near the noted Fisher gold quartz mines, and a dredge company is expected to take hold there this summer. The locality has the advantage of a good wagon road from the river, distant 10 miles.

A company known as the Stanley Dredge Company completed a dredge on the upper portion of the Stanley meadows last fall, and the trial run proves that it is paying ground. The company has a large tract of that kind of ground. The meadows were well prospected years past and some mining done with sluices and rockers, but the ground proved too flat to work to advantage by draining methods and is well suited for dredging plants. Another large strip of rich ground, adjoining that of the Stanley Company, was purchased by Boise parties last fall, with a view to building a dredge on it the coming season.

A new placer field was discovered and prospected to a satisfactory test on Basin Creek, in the vicinity of Stanley, the past summer and fall. T. A. Perkins of Ogden and H. H. Marshall of Stanley are the discoverers. They made locations covering several miles on the creek bottoms and found gold in paying quantities from surface to bedrock, 10 to 12 ft. It is claimed to be a fine dredging proposition with every facility available for works of that character.

In Yankee Fork District, it is apparent that placer mining is on the eve of a revival, especially from Jordan Creek down the river several miles below Bonanza and possibly as far up as Custer, as some of the rich gold quartz ledges are in that vicinity. Last spring, a number of old placer miners located much of the abandoned ground for several miles down the river, with the view of attracting the attention of dredging companies to the favorable location of the ground and prospects for machinery that handles dirt and gravel in bulk. The result was that Mr. J. N. Wallace of Boise, agent for the Souther Dredge Company of Boston, was sent in by his company to test the ground last September. He brought with him a steam boring and pumping machine and put down holes to bedrock at different points from Jordan Creek down Yankee Fork for 2 miles. The prospects were so satisfactory that the company took bond on all the ground from ½ mile above Bonanza to near the canyon of the Yankee Fork, a distance of 4 miles and located all the vacant ground that could be found besides. Portions of the ground had previously been prospected from surface to depths of 5 to 10 ft. and found to carry gold in paying quantities with every indication of coarse gold and better pay toward bedrock. The Souther Company has dredges in successful operation in Boise County.

Last fall a local company, composed of mining men of Custer, quietly prospected and secured a large stretch of gravel ground lying parallel with and joining a portion of the ground obtained by the Souther Dredge Company. They located 16 claims, 20 acres each, facing on Yankee Fork to mouth of West Fork, and back into the gravel knolls and flats on west side of Yankee Fork and east side of West Fork. The ground as located, is over 1 mile in length and about ½ mile in width, and comprises the greater portion of the ground known as Gold Basin, lying from near Bonanza to West Fork, facing on both the Yankee Fork and West Fork for outlets. The basin lies near and below all the gold quartz mines of Lower Jordan and Dickens Hill, and the Jordan Creek and Yankee Fork original channels pass in and through it. The bed-rock, throughout the Basin, is slate. Wherever prospected the gravel shows gold on the surface, as well as in shafts or drifts. It is the great wealth of the Jordan Creek gravel leads and the gold quartz veins, all in close proximity, and the favorable location of the ground for mining, that give the members of the new company faith in their possessions, and they believe their ground can be put on a paying basis with very little outlay of money. To this end, they are opening a portion of the ground on the west bank of the Yankee Fork, by drain from the river, by which the main channels can be thoroughly prospected, or the bed-rock along the pay channel and back into the more shallow ground adjoining the deeper gravel deposits. Much of the ground back from the river is very favorably situated for purposes of dredging, and it is all favorably located for hydraulic operations, as there is abundant fall both into Yankee Fork and West Fork streams, and living water courses on both sides of the ground that can be utilized at small expense. This new mining company has also located the high bar ground on west side of West Fork, and relocated the old abandoned ditch of the original Yankee Fork Placer Mining Company of 25 years ago. This new company is known as the Gold Basin Gravel Mining Company, and is composed of W. T. Oster, R. Macbeth, H. A. McCornick, M. Baumberger, George Coryell, all of Custer, and C. C. Clawson of Bonanza.

CYANIDE SALTS IN ELECTRO-PLATING.—The London "Engineer" says that with a view to overcome the objections to the use of potassium cyanide in electro-plating baths, Dr. Courant of Berlin proposes to utilize for this purpose triple cyanide salts. This triple salt, which is stable, forms, when dissolved in water, a copper electrolyte of remarkable purity and great conductivity. In like manner the triple salts of gold, silver, nickel and zinc may be produced.

MINERAL PRODUCTION OF SPAIN.

The production of coal in Spain was given in the "Engineering and Mining Journal" March 3d, page 254, and that of iron and iron ore March 10th, page 292. We now give the remaining statistics of mineral and metal production for 1899, being indebted for these figures in advance of the official reports to the courtesy of the "Revista Minera" of Madrid.

Copper.—The total production of copper-bearing pyrites in 1899 was 2,626,875 metric tons, against 2,299,444 tons in 1898; an increase of 327,431 tons. Of the total last year 2,551,875 tons came from the Province of Huelva. The production of precipitate from treatment of pyrites in Huelva was 28,912 tons, a decrease of 791 tons.

The output of the Rio Tinto Company was last year 1,649,854 tons of ore. The company made 18,540 tons precipitate, 15,775 tons matte and 4,140 tons copper sulphate. The Tharsis Company reports 572,941 tons of pyrites mined and 7,626 tons of precipitate made.

Lead.—The production of lead for the year was as follows, in metric tons:

	1898.	1899.	Changes.
Exported in pigs, bars, etc.	179,518	162,131	D. 17,387
Exported in manufactures	979	664	D. 315
Exported in ores	4,395	6,212	I. 1,817
Consumed in Spain	13,500	15,000	I. 1,500
Total lead	198,392	184,007	D. 14,385

The quantity of lead ore mined in 1899 was 334,000 tons. Of the lead exported during the year 68,955 tons were argentiferous and 93,176 tons soft lead.

Manganese Ore.—The production of manganese ore—all of which was exported—was 138,419 metric tons, only 357 tons more than in 1898. All of this was mined in the province of Huelva. Of the exports 127,732 tons went to Belgium, 4,842 tons to England, 4,499 tons to France and 1,335 tons to Germany. It is probable that a large part of the ore shipped to Belgium was in transit to Germany.

Quicksilver.—The total production of quicksilver in 1899 was 39,339 flasks, of which 37,378 flasks were from the mines of Almaden Company. In 1898 the output was 48,247 flasks, showing a decrease of 8,908 flasks. The statement of the Almaden Company shows the following results:

	1898.	1899.	Changes
Ore mined, tons	19,945	20,322	I. 377
Ore treated, tons	18,233	15,194	D. 3,039
Quicksilver produced, kgs.	1,594,629	1,289,541	D. 305,088

The average tenor of the ore treated last year was 8.49 per cent. quicksilver, against 8.75 per cent. in 1898.

Silver.—The silver produced in Spain in 1899 was 83,251 kgs., while that exported in lead is estimated at 86,200 kgs., making a total of 169,451 kgs.; an increase of about 3,000 kgs. over 1898. All the silver produced in Spain is obtained in connection with lead, except a small quantity recovered from dry ores in the works at Hiendelaencina.

Zinc.—The production of zinc ore is estimated at 125,000 tons, of which about two-thirds was blende and one-third calamine. The ores were mined in Murcia and Santander. In 1898 the total was 99,836 tons. The production of spelter or metallic zinc was 8,000 tons in 1899, all of this being made in the works of the Real Compania Asturiana at Arnao.

Other Products.—The production of asphalt was 2,637 metric tons, of which 1,750 tons were mined in Alava and 887 tons in Navarra. The total was an increase of 83 tons over 1898.

There were 172,503 tons of hydraulic cement made last year, against 164,862 tons in 1898; showing an increase of 7,641 tons.

The production of common salt was 600,000 metric tons, a large increase over 1898. The consumption remained about the same, but there was an increase of over 111,000 tons in exports.

The output of iron pyrites, which was all exported, amounted to 319,285 tons in 1899; an increase of 62,944 tons over the previous year.

Exports.—The exports of metals from Spain for the year were as follows, in kilograms and metric tons:

	1898.	1899.	Changes.
Gold ....Kgs.	413	194	D. 219
Silver .... "	64,223	74,642	I. 10,419
Quicksilver .... "	1,741,392	3,221,101	I. 1,479,709
Copper:			
Black copper....Tons	1,336	1,075	D. 261
Matte and precipitate.... "	48,234	42,933	D. 5,301
Lead .... "	179,496	161,762	D. 17,734
Zinc .... "	4,553	2,390	D. 2,163
Pig iron.... "	46,127	40,879	D. 5,248
Minor metals and alloys.... "	222	387	I. 165

The total value of these exports is reported at 116,949,316 pesetas in 1899, and 120,747,996 pesetas in 1898; the decrease last year being 3,798,680 pesetas. The exports of ores and minerals were, in metric tons:

	1898.	1899.	Changes.
Iron ore	6,558,060	8,606,558	I. 2,048,498
Lead ore	7,191	10,353	I. 3,162
Zinc ore	65,573	95,088	I. 29,515
Copper ore	899,238	948,917	I. 49,679
Manganese ore	139,050	139,352	I. 202
Antimony ore	50	92	I. 42
Iron pyrites	256,341	319,285	I. 62,944
Salt	219,670	331,081	I. 111,411

There was also an export of 8,073 tons coal last year, against 2,643 tons in 1898. The total value of the mineral exports was 153,838,737 pesetas, an increase of 29,341,887 pesetas over the previous year.

COAL PRODUCTION IN BELGIUM.—The aggregate production of coal in Belgium last year is returned at only 21,917,740 metric tons, as compared with 22,088,335 tons in 1898; a decrease of 170,595 tons, or 0.7 per cent. Stocks at the end of 1899 only totalled 301,510 tons, as against 503,804 tons at the end of the preceding year.

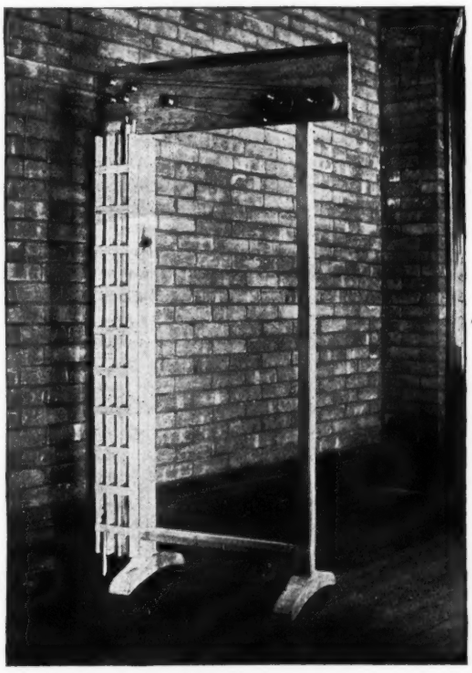
GERMAN IRON ORE TRADE.—Imports of iron ore in Germany in 1899 were 4,165,372 metric tons; in 1898 they were 3,516,577 tons, showing an increase of 648,795 tons. These imports came chiefly from Spain and Sweden. Exports of iron ore were 3,119,878 tons in 1899 and 2,933,734 tons in 1898, showing an increase of 186,144 tons. These exports were chiefly to Belgium and France.

BALANCING BAILERS FOR UNWATERING MINES.*

By William Kelly.

The simplest and most effective way to balance bailers in a shaft with two compartments is to attach them to a hoisting plant of which the rope winding part is driven directly by a pair of reversible engines. There are a number of first motion plants that fill the requirements in the Lake Superior district but they are not always available when bailing is required. Orders for unwatering mines and emergencies in pumping usually come with little warning and appliances at hand must be utilized. The advantage of balancing bailers is so great that it is desirable to use some device for the purpose even when a direct acting plant with reversible engines is not at hand. We have lately had some experience in unwatering mines and the methods adopted for balancing the bailers may be of interest.

Some years ago two bailers were made for the West Vulcan mine to be used should an emergency arise, and as there is a first motion plant there, the weight of the bailers was a secondary consideration and they were made of ¼-in. steel. The bailers were not used until it became necessary to unwater the Curry Mine in the early part of 1899. The hoisting plant consists of two 6-ft. independent drums on a shaft driven by a non-reversing Corliss engine. The safe load for the plant was given by the builders as 8,000 lbs. The shaft has two compartments. The plan adopted for balancing the bailers was counterbalancing each bailer separately. To determine the size of the bailers and the quantity



MODEL OF BALANCED BAILERS.

of water that could be raised at a lift, it was necessary to deduct from the safe load for the engine:

	Lbs.
Weight of 600 ft. of 1-in. rope, at 1.58 lbs	948
Weight of 600 ft. of ⅝-in. rope, at 0.62 lb.	372
Weight of bailers unbalanced to overhaul rope to engine house	300
Total	1,620

This left the amount of water load 6,380 lbs. This is equivalent to about 765 gallons, and as the bailers are 39 in. in diameter they were made 12 ft. 4 in. in length above the valve. The counterbalances used were 12-in. Cornish pump plungers. Scrap was put inside and the weight adjusted so as to counterbalance the bailers except so far as was necessary to allow them to start down freely from the top. The advantage of this plan is that the bailer that is at the bottom may be started just as the upper one gets to the dump, and while one is being raised the other one is emptied and lowered into the water, thus saving the time it takes for emptying and filling and keeping the engine hoisting continuously. The disadvantage is that where provision has not been previously made, a road for the counterbalance has to be put in as unwatering proceeds, a matter which takes considerable time.

Just as unwatering at Curry was nearly completed another plan for balancing bailers was suggested and seemed to offer considerable advantages, so when it was decided to unwater the East Vulcan Mine the new plan was tried. The hoisting plant at East Vulcan consists of two 10-ft. drums in tandem driven by a non-reversible Corliss engine. The bailers were balanced by means of a third rope running from one bailer up over a pair of head sheaves and down to the other bailer. The feasibility of the plan depended on whether the brake of the drum of the descending bailer could be eased off so as to throw the weight of the bailer upon the counterbalance rope and yet not permit the hoisting rope to get too much slack. The brakesman thought this could be done. It was found in practice, however, that the brakesmen were unable to keep the two drums so nearly at the same speed and the weight of the descending drum was thrown suddenly from the drum rope to the counterbalance rope and back again, with the result that in a few hours the counterbalance rope was broken.

The capacity of the hoisting engine as figured by the makers is a little over 15,000 lbs. The ropes on the drums are 1⅛ in. for which the safe working load is 16,400 lbs. The counterbalance rope is ⅝ in., for which the limit is 5,400 lbs. The weight of 880 ft. of 1⅛-in. and ⅝-in. rope is 2,300 lbs., which deducted from the capacity of the plant, gave us 12,500 lbs. as a safe load of water. The bailers were lengthened so as to be 24 ft. 4 in. above the bottom of the valve, and being 3 ft. 3 in. in diameter, held a little over 1,500 gallons. They weighed empty, one of them 5,250 lbs., the other 5,400 lbs.

When it was found that the counterbalancing rope from one bailer to the other was an unsatisfactory arrangement, the following plans were open: First, to take out one bailer and use the compartment for a counterbalance, so as to continue the use of a bailer of full size. The size of the hoisting department did not permit of putting in a counterbalance for a bailer in the same compartment. The second plan was to cut down the bailer so as to bring the weight of the bailer and load within the capacity of the engine. This would reduce the weight of water hoisted per load nearly one-third. A third plan was to run the bailers as they were without any counterbalancing device and take the chances on the machinery, but the load was one-third more than recommended by the makers of the machine, and the idea did not commend itself. A fourth plan was devised, and to study its feasibility a model was made by Mr. Roberts. The device adopted consisted of a third rope, the ends of which are wound upon the two drums in the reverse direction from that of the hoisting ropes to permit of the traverse upon the drums; the rope instead of going directly from one drum to the other is carried about 200 ft. to a turn sheave, as illustrated by the photograph of the model. The mode of operation is as follows: When the bailer gets to the top, the brakesman sets the brake, and at the same time the brakesman at the other drum sets the brake for the bailer that is in the water. As soon as the bailer at the top is empty, which takes about 12 to 15 seconds, the brakesman releases the brake of the upper bailer and its weight is carried by the intermediate rope to the other drum, tending to wind the latter up. The second brakesman then releases the brake and puts on the friction and hoists the lower bailer of the top. It has worked quite successfully.

The accompanying cut, for which we are indebted to the courtesy of the Cleveland "Iron Trade Review," shows the model above referred to.

* Paper read before the Lake Superior Mining Institute, February, 1900.

RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

Specially Reported for the Engineering and Mining Journal.

DUTY ON MAGNESIUM.—Magnesium powder imported under act of 1894 or act of 1897 is free of duty. Magnesium ribbon imported under act of 1894 or act of 1897 is not free of duty as magnesium, but is dutiable under said acts as a manufacture of metal not specially provided for.—In the matter of the protests of Merck & Co. against the decision of the Collector of Customs at New York; United States Board of General Appraisers.

DUTY ON STEEL TUBES.—Tubes drawn from hollow billets, recognized commercially as finished tubes, are dutiable as such under paragraph 152, act of 1897, and are not hollow steel billets. Such articles are merely the blocks or billets of steel pierced and used for drawing into tubes. If subjected to process of drawing after piercing, they are no longer billets.—In the matter of the protests of Page Newell & Co., against the decision of the Collector of Customs at New York; United States Board of General Appraisers.

MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

(We shall be pleased to receive specimens of ores and minerals, and to describe and classify them, as far as possible. We shall be pleased to receive descriptions of minerals and correspondence relating to them. Photographs of unusual specimens, crystals, nuggets and the like will be reproduced whenever possible. Specimens should be of moderate size and should be sent prepaid: We cannot undertake to return them. If analyses are wanted we will turn specimens over to a competent assayer, should our correspondent instruct us to do so and send the necessary money.—Editor E. & M. J.)

104.—T. R. I.—Copper Ore.—Your specimen, a fine-grained basic igneous rock, contains small disseminated crystals of pyrite, iron sulphide, and shows green copper stains on the weathered surface. The amount of copper present is evidently very small, probably not over 1 per cent.

105.—T. G. B.—Magnetite.—The heavy black mineral is magnetite, magnetic iron oxide. Judging from its appearance and weight the sample contains a high per cent. of iron. Injurious impurities, such as phosphorus or titainum, may be present, and analysis is necessary to determine the value of the ore.

106.—W. C.—Your sample is a chlorite and sericite schist containing scattered crystals of pinkish corundum, aluminum oxide, some of which are of considerable size. Such rock might have considerable value, the value being determined by the ease with which the rock can be mined and the cost of crushing and separating the corundum. In Western North Carolina you would also have to consider the cost of transportation.

107.—F. A. H.—Gold Ore.—The substance you send is apparently a much altered eruptive rock. It still contains some quartz, but the feldspar has altered to kaolin. The original character of the rock can probably

be determined best by noting its relation to other rocks, looking for portions that are less altered. As you say it carries gold and silver, it may be called an ore. So far as mining usage is concerned, any substance yielding a useful metal may be called an ore.

108.—C. W. H. B.—Mica.—The three samples of mica you send are not promising. They show, if an average, that the claim is not likely to give sheets of good size. Sample A is good quality. Sheets as clear and free from flaws might be worth $2 per lb. at New York City. Samples like B might not be worth over 50c. per lb. Sample C is probably valueless. It contains ribs and cracks, and dark spots and streaks.

109.—G. de W.—Supposed Tin Ore.—The hard reddish-brown mineral showing no well-marked crystals is not cassiterite, tin oxide, as it has a more vitreous luster than that mineral and does not reduce to tin on charcoal. It is perhaps, titanite, the lime-titanium silicate. It is easily told from blende, zinc sulphide, which is much softer and has a resinous luster.

110.—D. C.—No. 1 is a compact sandstone with red stains of iron oxide; No. 2 is a soft black shale; No. 3 is a fine-grained slate containing crystals of pyrite, iron sulphide, which may carry gold, though it is not likely that gold occurs in Western Massachusetts; No. 4 is molybdenite, molybdenum sulphide. It has a bluer streak than graphite.

QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot give professional advice, which should be obtained from a consulting expert. Nor can we give advice about mining companies or mining stock. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers must send their names and addresses. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

New England Gas and Coke Company.—Can you tell me what coal this company uses in its new coke works near Boston?—P. T.

Answer.—The company uses coal from the mines of the Dominion Coal Company, which are in the Island of Cape Breton, Nova Scotia.

Calcium Carbide.—Where can I obtain the latest information about the manufacture of calcium carbide?—G. H. A.

Answer.—A summary of the latest information on the manufacture of calcium carbide will be found in the article on that subject in "The Mineral Industry," Volume VII.

Platinum Ore Treatment.—Is platinum ore treated in this country? If so, where?—G. M. B.

Answer.—It can hardly be said that platinum ore is treated anywhere. Platinum is usually found in alluvial deposits and not in ores, and the treatment consists in refining it, and not in separating it from the ore, as in the case of gold, silver or copper. Platinum is refined and manufactured into chemical apparatus in this country by Baker & Company, New Jersey, and J. C. Entriken & Co., Malvern, Pa.; also by S. S. White Dental Company, Philadelphia.

Patents in Australia.—Is there any general system of granting patents or protections for inventions in Australia?—J. T.

Answer.—No. Each of the seven colonies has its own patent system, and a patent taken out in one is no protection in any of the others. In case the federation of the colonies, which is now under discussion, should be completed, a uniform patent system would be adopted. This is one of the benefits which would result from union; the present system often causes much trouble.

Aluminum.—Where can I find accounts of the latest methods for manufacturing aluminum?—G. H. A.

Answer.—The standard authority on the manufacture of aluminum is Mr. J. W. Richards' book on "Aluminum; Its History, Occurrence, Properties, Metallurgy, Applications and Alloys" (price $6). No more recent general treatise has been published. The number of manufacturers of this metal is limited, and, as a rule, they keep any improvements made in their processes to themselves. Summaries of progress made each year with regard to this metal can be found in volumes of "The Mineral Industry."

Bismuth Duty.—What is the import duty on metallic bismuth? Where can the quotations be found for the London price of the metal?—H. E. B.

Answer.—There is no duty on metallic bismuth. It is imported into the United States free.

We cannot find that any of the London papers or metal circulars give regular quotations of metallic bismuth. It is quoted in some German circulars, such as that of E. de Haen (List, bei Hanover). The quantity sold is, apparently, not large enough to attract the notice of the regular metal markets.

Prospecting in Siberia.—Is it true that the Russian Government has issued a general invitation to American miners to prospect for gold and other metals in Siberia?—J. T. P.

Answer.—It is not true. It is difficult to see how such a statement has gained currency. The Government recently issued a notice offering for sale leases on certain property in Eastern Siberia, which was supposed to contain gold. This, however, involved no right to prospect the ground except by the purchasers of leases. The Russian mining regulations are exceedingly strict, and all gold is held to be the property of the Czar. A recent note from United States Consul-General Holloway, in St. Petersburg, in answer to an inquiry on this point, says: "The order prohibiting foreigners to mine on the west coast of Siberia is still in force, and a special permit can only be had by some one with a strong personal influence with the Emperor, on whose special order they are issued."

No one should attempt to go to Siberia without having some knowledge of the Russian mining regulations, and without providing himself with passports, permits and all the documents required by the Russian police.

Aluminum as an Electrical Conductor.—Can you give me any data as to the weight, size, etc., of an aluminum wire line for transmitting electric power, compared with one of copper?—R. N. J.

Answer.—The following data were given by Mr. Lee at a recent meeting of the Pacific Coast Electric Transmission Association, the subject under discussion being a line built by the Blue Lakes Power Company: "Prof. Perrine states that the conductivity of aluminum, as compared with copper, is 60 per cent., and in practice we use 60 per cent. greater cross-section. From the tables that are given of copper we find by reference to the cross-sections, that by using wire two sizes larger we get practically the same conditions as regards conductivity; sometimes a little in excess, and sometimes a little less. We have adopted this rule for convenience and so as to conform to the Standard wire gauge. Nearly all the tables in existence are those of B. & S. copper wire, giving the data on copper wire, and to avail ourselves of those tables we have laid down that rule. As regards the question of weight we find that it is practically 48 per cent. of that of copper of equal conductivity. That is to say, if you had a certain span of wire, copper, of given conductivity, and weighing 100 lbs. to the span, a span of aluminum of equal conductivity and length would weigh 48 lbs. Aluminum, of course, is rather susceptible to alkalies, but is not affected to any great extent by acids. On the question of price: It is considerably cheaper than copper. I don't know exactly what the price of copper wire is, but I think in the neighborhood of 21c. to-day, and aluminum is in the neighborhood of 33c., and at these prices, taking into consideration the fact that you only have 48 per cent. of the weight of copper for a given conductivity, we can put up aluminum for a price that is about equivalent to copper at 16c. per pound; so that there is a decided advantage in the matter of price in favor of aluminum."

ELECTRICITY IN THE NEW MINT.—In the new United States Mint in Philadelphia electricity is to be used throughout for driving the presses and milling machines. The electrical equipment includes 4 direct-connected engines and dynamos, in addition to the following motors installed in the coining departments: 14 motors of 45 H. P. each, 16 of 5 H. P. each, 6 of 25 H. P. each, 30 of 5 H. P. each for the presses, and 15 of 5 H. P. each for the milling machines. There is also to be an electro-refining department, and electric power will be used in the engraving department.

PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects, issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending March 27th, 1900.

645,945. TUYERE FOR FORGING FURNACES. Jehu Eastep, Harry A. Deiters, and Otto Barth, Spencer, W. Va. A tuyere having a gobular, internal seat for a blast-regulator, blast inlet and outlet passages in said seat, a tube extending through it from said seat, a chamber surrounding said seat, means for adding a cooling fluid to said chamber, a globular blast-regulator in said globular seat and having blast inlet and outlet passages, and an operating-stem attached to the regulator and passing through the tube.

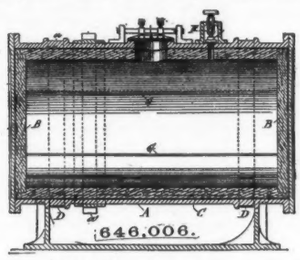
645,962. PNEUMATIC SEPARATOR. Charles H. Lane, Cleveland, Ohio. The combination of a substantially-horizontal suction-pipe, and a substantially-vertical settling-chamber connected in and hanging below said pipe and consisting of an upper section and a lower section which telescopes onto the upper section, with a dividing-partition which extends transversely across the pipe and the upper part of the settling-chamber, and means for vertically adjusting said lower section.

645,976. METALLIC COMPOUND FOR PROJECTILES. Georges Roth and Charles Krnka, Vienna, Austria-Hungary. A mantleless projectile consisting of a malleable alloy of copper, nickel and at least 10 per cent. of tungsten.

645,987. ORE-CONCENTRATOR. William E. Wild, Denver, Colo. The combination with the concentrating-belt and table and their oscillating support and main driving-shaft, of means for varying and maintaining any desired angle of longitudinal inclination of the belt and table.

646,002. VENTILATING-FAN. Heinrich Klein, Pirmasens, Germany. A ventilator rotating with great velocity in a slowly-rotating drum which on its circumference has a number of equally-distributed, slit-shaped apertures for the escape of the air.

646,006. TREATMENT OF GOLD AND SILVER ORES, ETC. John C. Montgomerie, Stair, Scotland, and Henry Parkes, London, England. The


646,006.

process consists in treating the ore or compound with a cyanide or an alkali metal, caustic alkali and barium dioxide in conjunction with ammonium sulphate.

646,019. MANUFACTURE OF GAS. Ettore De Fazi, Rome, Italy. The process consists in mixing calcium monoxide, bitumen and calcium carbide and treating the mixture with water.

646,027. MACHINERY FOR PRESSING BRICKS OR THE LIKE. Ralph T. Hughes, Saltburn, England. The combination of tubular mold fixed vertically, two plungers working to and fro through openings in two opposite vertical sides of the mold, inclinded sliding block, fixed inclines below which the ends of the block pass when the block is closing the top of the mold and rising-and-falling discharging-plunger which serves to close the bottom and to discharge the bricks after they have been compressed.

646,030 and 646,031. AIR-COMPRESSOR. James D. McKinnon, Portland, Ore. The combination with a frame, an annular series of cylinders mounter therein, inlet and outlet valves for each cylinder and a plunger in each cylinder, of a shaft mounted centrally in said frame, pitmen connecting the plungers in pairs, each pitman having a slot centrally between its ends for the accommodation of said shaft, an annular series of wheels carried by said shaft, a series of arms, one for each plunger, each arm pivotally connected at one end with the frame and pivotally connected near the other end to one of said pitmen in position to be actuated by said wheels to reciprocate the pitmen and operation the plungers connected therewith.

646,079. PUMPING-ENGINE. George W. McGill, Kearney, Nebr. In a pumping mechanism, the combination, with two cylinders, one of which is provided with a valve chamber and the other one with two communicating chambers, of a tubular guide connnecting said cylinders, and communicating with the two chambers of one of them, a piston-rod through the guide, a piston-head upon one end of the rod within one of the cylinders and a piston head and tappets upon the other end of the rod.

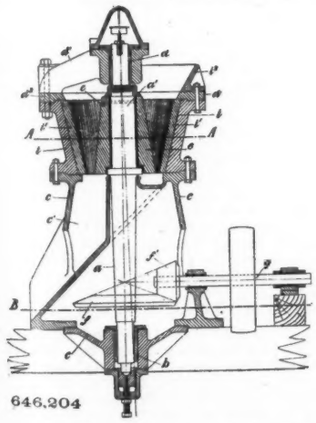
646,118. PROCESS OF MAKING ALLOYS. Guilliam H. Clamer and Joseph G. Hendrickson, Philadelphia, Pa. The process of preventing segregation of a lead-copper alloy consists in adding thereto a relatively-small proportion of nickel.

646,132. METHOD OF TREATING WOVEN WIRE IN MANUFACTURING WIRE-GLASS. Joseph W. Sheppard, New York, N. Y. The method consists in first coating the woven wire with lime, removing the lime by means of a suitable bath, drying the woven wire, and then embedding the wire in the glass.

646,204. ORE OR ROCK BREAKING MACHINE. Edward Comerford, Liverpool, England. An outer conical body having its axis vertical, an inner loosely-mounted crushing-barrel and a vertical operating-shaft, having its bearing axis at the upper and lower ends concentric with the axis of the body, and having an eccentric portion on which the crushing-barrel is mounted and free to revolve, with its axis inclined outward from the upper end toward the lower end, whereby the eccentricity of the lower part of said barrel-bearing portion is greater than the eccentricity of the upper part.

646,232. COMPOUND FOR COATING INCANDESCENT MANTLES. Albert S. Newby, Chanute, Kan. A coating liquid for incandescent mantles, composed of 3 oz. gun-cotton, 55 oz. of sulphuric ether, 50 oz. wood-alcohol and 4 oz. of glycerine

646,249 and 646,250. CRUSHER AND PULVERIZER. Milton F. Williams, St. Louis, Mo., assignor to the Williams Patent Crusher and Pulverizer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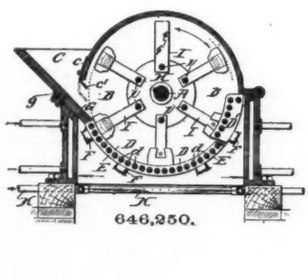

646,250.

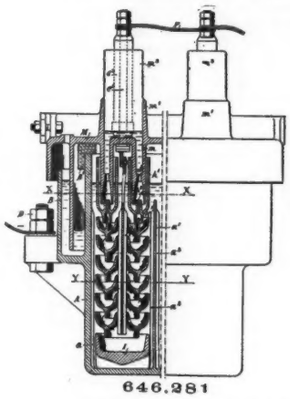
Company, same place. In a rotary crusher, an improved hammer consisting of a shank-bar having lateral projections, a slidable head having a hole for the shank-bar, and shoulders for engaging said projections, and yielding pieces separating the opposing shoulders and projections.

646,266. APPARATUS FOR PICKLING OR CLEANING METAL SHEETS. Samuel Diescher, Pittsburg, Pa. The combination of an elevated track having a movable section, a trolley movable along the track, a lock carried by the track and arranged to engage the trolley as its moves to position on the section, a vat or tank arranged below the movable track-section, means for raising and lowering the track-section.

646,268. APPARATUS FOR MAKING BISULPHITE OF ZINC. Vizzo Drewsen, New York, N. Y. An apparatus consisting of a milk-of-lime tank, means for supplying milk of lime thereto, a cooler connected with said tank, a circulating-pump, a monosulphate-tank, a pipe connecting the pump with the tank, a cooler connected and a circulating-pump.

646,281. ELECTROLYTIC APPARATUS. Louis H. A. B. M. Hazard-Flamand, Boulogne-sur-Seine, France. In electrolytic apparatus for the production of gases, positive and negative electrodes, an annular gas-tight diaphragm separating said electrodes, a deep channel around the upper part of the diaphragm, said channel being partially immersed in the electrolyte, holes pierced through the base of said channel and connnecting the electrolyte with a sealing liquid in the interior of the channel, a cover having a prolongation projecting downward into said channel, and concentric therewith, communicating with a second channel on the top of the cover.

646,335. PROCESS OF TREATING GOLD ORES. Charles Wetherwax, Best, N. Y. In the treatment of gold ores for liberating the gold from its combination or association with other elements or compounds,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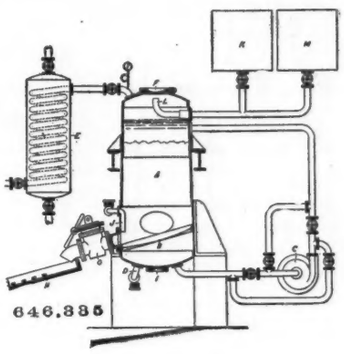
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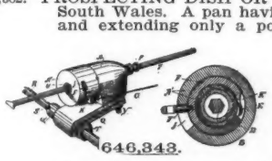
a process which consists in digesting the ore under steam-pressure in a solution containing water-glass (sodium or potassium silicate).

646,343. ROCK-DRILL. Russell Avery, Sausalito, Cal. In combination, a casing through which the drill is guided and movable, a plate upon which the casing is turnable transversely and to which it may be clamped, a polygonal supporting-bar fixed transversely to the line of movement of the drill, a sleeve slidable but not turnable upon said bar, and clamping-jaws forming an extension of the drill-casing support.

646,354. APPARATUS FOR TUNNELING. Albert W. Buel, New York, N. Y. An apparatus comprising a casing, a shield surrounding said casing and adapted to be advanced thereon, a packing between said casing and the surrounding shield, and guide devices extending on a longitudinal plane and projecting within the packing-space between the casing and shield.

646,382. PROSPECTING DISH OR PAN. Walter G. Collins, Coramba, New South Wales. A pan having an angle-plate secured to its side wall and extending only a portion of the way around said wall, the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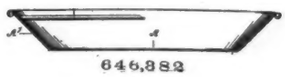
646,382

angle between the inner faces of the wall and the projecting straight ledge of the angle-plate being not greater than 90°, whereby when the dish is tilted during the operation of washing a pocket is formed between the plate and the wall.

646,386. HYDROCARBON-BURNER. Milton O. Godding, Los Angeles, Cal. A hydrocarbon-burner composed of a burner-head having an oil-supply passage terminating in a semicircular horizontal discharge-port, a valve to regulate such discharge-port; a steam-supply passage terminating in a semi-circular horizontal discharge-port in the rear of and below the oil-port, a valve to regulate such steam-port, an oil-pipe connected with the oil-passage and a steam-pipe connected with the steam-passage.

646,387. PROCESS OF PURIFYING WATER. John MacDougall, Detroit, Mich. The process consists in passing water into a suitable tank or receptacle, causing the agglomeration of matters in the water by subjecting the water, while in such tank or receptacle, to the action of an excess of lime over that necessary for the neutralizing of any carbonates present, the excess being in a proportion not greater than 10 grains to a gallon, and then removing the agglomerates.

GREAT BRITAIN.

The following isa list of patents published by the British Patent Office on subjects connected with mining and metallurgy.

Week Ending March 3d, 1900.

2,849 of 1899. MAGNETIC SEPARATOR. E. Kreuser, Mechernich, Germany. In electromagnetic separators, an arrangement of the magnets so that the ore is led along a supporting surface into the magnetic field instead of falling by gravity.

2,926 of 1899. SAFETY BLASTING CARTRIDGE. J. Macnab, London. Safety arrangements in connection with gun-cotton blasting cartridges, so as to extinguish the flame.

2,933 of 1899. IRON REFINING. G. L. Morton, London. Improvements in the Doherty process of refining iron by injecting steam into cupolas.

3,326 of 1899. GOLD RECOVERY. A. Byrd, London. Treating ore with mercury vapor suspended in hot air, for the recovery of gold.

5,097 of 1899. ROCK DRILL. J. McCulloch, Illogan, Cornwall. Improvements in the distributing valve of the inventor's rock drills.

5,224 of 1899. ALUMINUM-MAGNESIUM ALLOY. L. Mach, Jena, Austria. Adding 2 to 10 per cent. of magnesium to aluminum, thus making it capable of being hardened by rolling.

12,910 of 1899. TIN OXIDE MAKING. H. Jaeger, Cologne, Germany. Method of producing pure oxide of tin by volatilizing the metal in hot compressed air.

22,710 of 1899. ELECTROLYTIC SEPARATION OF ZINC. S. Stepanoff, St. Petersburg. A method of increasing the extraction of zinc electrolytically from the sulphate.

24,478 of 1899. SLIMES TREATMENT. S. H. Johnson and H. L. Sulman, London. In filter press treatment of slimes, half expressing the water in the press, then putting in further solvent and completing the extraction.

PERSONAL.

Mr. J. A. Bamberger, of Salt Lake, Utah, is in New York City.

Mr. Geo. J. Hoffman, mining engineer, of San Francisco, is on his way to London via New York.

Mr. Martin J. Heller, mining engineer, of San Francisco, is now on Capt. J. R. De La Mar's staff of mining experts.

Mr. T. C. Harrington, of Philadelphia, one of the stockholders in the War Eagle Mine, is on a visit to Rossland, B. C.

Mr. J. W. McQueen, secretary-treasurer of the Sloss Iron and Steel Company, has been East on business connected with his position.

Mr. Ferdinand Ruttman, mining engineer, of New York, is now in Alaska investigating several gold properties for Eastern capitalists.

Mr. Samuel A. Rauk has been appointed manager of the Union & Bonanza Tunnel Company at Central City, Col., vice Mr. Henry Becker.

Mr. W. H. Stimpson, of Boston, has been appointed manager of the East Boston Gold Mining and Milling Company at Central City, Col.

J. Geo. Leyner, of Denver, Colo., is building a large duplex air compressor for the Castle Creek Tunnel and Power Company of Aspen, Colo.

Mr. A. G. Blair of St. John, N. B., who has been looking over mining claims near Jardine, Mont., in the interest of St. John men, has returned home.

Mr. Timothy W. Sprague, electrical engineer of Boston, has just returned from a three weeks' trip on professional business to Arizona, California and Colorado.

Mr. R. C. Clute, Special Commissioner of the Dominion Government on the labor question as affecting Rossland mining operations, has returned to Toronto, Ont.

Mr. James Bowron, treasurer and vice-president of the Tennessee Coal, Iron and Railroad Company, has gone on a trip to England which will probably last a month or two.

Mr. George G. Griswold, who has been with the Philadelphia Smelting and Refining Company at Pueblo, Colo., for a number of years, is now chemist at the Globe smelter.

Mr. H. F. E. Ganun has resigned his position with the Phoenix Iron Works Company of Phoenixville, Pa., to become master mechanic for the Lukens Iron and Steel Company of Coatesville, Pa.

We have received a letter from Belgium for Mr. F. Lehman, addressed in care of the "Engineering and Mining Journal." If Mr. Lehman will send his address to this office, the letter will be forwarded to him.

Mr. C. S. Herzig, who recently had charge of a copper property in Alabama for the Lewisohn Brothers, of New York, has accepted the position of superintendent of the Auburn Mining Company at Virginia, Minn.

Mr. G. M. Gonyard, mining engineer of Denver, Colo., has just returned to that city from an 8-months' trip through Mexico in the interests of an Eastern syndicate. He left for Mexico again in a few days.

Dr. Wm. B. Phillips, of Pittsburg, Pa., who has been examining mineral lands near Linden, Va., recently, is about to start on a professional trip through Arizona, New Mexico and Mexico, expecting to return in July or August.

Mr. William S. Haskins, superintendent of the Nickel Plate Mine and other properties of the British America Corporation at Rossland, B. C., is on a visit to his old home, San Francisco, Cal. He will return to Rossland May 1st.

Mr. Hiram W. Hixon, who has for 2 years been superintendent of the East Helena, Mont., Smelter, has gone to London to consult his principals, who have employed him to construct and operate a copper and nickel smelter in Canada.

Mr. Henry Watson, mining and metallurgical engineer, late of South America annd Australia, has been examining and reporting on mining property in British Columbia for the Canadian-American Gold Mining and Development Company.

Mr. W. H. Broughton of Boston, Mass., who has been acting as engineer at the Highland Bay Mine at Bingham, Utah, for a year past, has been elected president of the Utah Consolidated Company. Mr. Broughton is a son-in-law of Mr. H. H. Rogers.

Dr. Konda, an owner of copper mines at Bashi, Japan, is in California examining some of the copper smelting plants, in hopes of ascertaining some method by which the noxious gases from roasting copper ores can be got rid of, and avoid expensive litigation.

Mr. Francis G. White has resigned as manager of the Gower Mills Syndicate at Black Hawk, Col., and has been succeeded by Mr. J. E. Waters, of the engineering firm of Waters Brothers & Kitchener, of Denver. Mr. White may visit the Cape Nome gold fields.

Mr. Evan Powell, of Llanidlos, Wales, managing director of the Mt. Carbon Company, of Powellton, W. Va., left on April 8th for a 2 weeks' trip to Cincinnati, St. Louis, Chicago, New York and Philadelphia, and expects to sail for home on May 12th from New York.

Mr. H. M. Carruthers, who for the past year has been on the advertising staff of the "Engineering and Mining Journal," has been appointed manager of the advertising and circulation departments of the "Engineering and Mining Journal" and "The Mineral Industry."

Mr. Paul Maltzoff, who is connected with the firm of Sibiriakoff, Nemtchinoff & Basanoff, operating extensive gold placers in Siberia, has been inspecting California mines. He left San Francisco for his home in Irkutsk, Siberia, April 6th.

Mr. J. W. Collins, formerly of the Wentworth Proprietary Gold Mines, of New South Wales, has been appointed general manager of the Lake View Consols Mines at Kalgoorlie, vice Mr. H. C. Callahan, resigned. Mr. Collins recently has been traveling consulting engineer for Mr. Whittaker Wright's various companies.

OBITUARY.

John Landell Thomson, a mining expert and mineralogist, died of pneumonia on April 4th, at Norfolk, Va. Mr. Thomson was born at Glasgow, Scotland, and came to this country in 1875, immediately associating himself with the W. A. Clark mining interests. He was in charge of Mr. Clark's mines at Butte, Mont. for many years and also connected with other Clark interests at Jerome, Ariz. Coming East some years ago, he took charge of the Orford Copper Works at Bayonne, N. J., which place he resigned to take up mining enterprises.

Emory L. Ford, president or the Michigan Alkali Company, died suddenly March 29, at Genoa, Italy, of heart failure. Mr. Ford was born in Greenville, Ind., 53 years ago, and was the son of Capt J. B. Ford, who is still living, the pioneer plate glass manufacturer, and founder of Ford City, on the Alleghany River. The deceased was one of the organizers of the Pittsburg Plate Glass Company, from which he retired about 2 years ago. With his brother Edward he engaged in the soda ash business at Wyandotte, Mich. Prior to going to Pittsburg he spent some time in New Albany, Ind., where he learned the plate glass business with his father.

George Schmitz-Dumont, a mining engineer well known in the Transvaal, was killed in the battle of Spion Kop, January 24th, 1900. He was born in 1865, at Los Angeles, Cal., of German parents. In 1870 his family returned to Europe. He received his early education in Dresden, and afterward studied as mining engineer, at the University Heidelberg, at Bonn, and in Berlin. On completing his courses, he entered the Prussian State service, and in 1896 had reached the position of Berg-Assessor. In that year he resigned, and accepted a position as mine inspector in the service of the South African Republic. He was stationed at Barberton and at Johannesburg, and for some months was acting State mining engineer, during the absence of Mr. Klimke, who held that office. In 1898 he resigned from the Government service to accept the position of managing director of the George Gooch Gold Mining Company. This company's mine had given a great deal of trouble, chiefly owing to mismanagement, but under Mr. Schmitz-Dumont's charge, order was restored and the mine was brought into excellent condition. He was one of the few mine managers who at the opening of the war took part with the Boers, and entered into service with one of the commandos from Johannesburg. He was much esteemed by his associates for his ability as a mining engineer, and for his close application to work: at the same time his intimate associates found him a sympathetic companion, and appreciated his kindness of heart and his constant good humor.

SOCIETIES AND TECHNICAL SCHOOLS.

Lehigh University.—The physical laboratory on the University grounds near South Bethlehem, Pa., was burned on April 6th. The fire started in a room where Prof. W. S. Franklin and several students were developing photographs and spread rapidly. The building, 350 ft. long and 80 ft. wide, was erected in 1892. The loss is estimated at $200,000, insurance $50,000.

Civil Engineers' Society of St. Paul.—At the meeting on April 2d 10 members were present. Mr. William Danforth was elected to Membership.

Mr. Oscar Claussen opened a discussion on "Municipal Lighting" by presenting a comparative statement in detail of the cost of maintenance of the plants at Chicago, Detroit, Allegheny City and the probable cost for St. Paul, having first, in a general way, outlined the various systems and recent improvements.

American Chemical Society—New York Section.—At the regular monthly meeting on April 6th the following papers were read: "A Method of Obtaining Nucleic Acid," by Dr. P. A. Levene. "Analysis of a Saline Deposit from Southern Nevada," by Ralph W. Bailey. "Notes on the Ferrocyanide Titration of Zinc," by Dr. E. H. Miller and E. J. Hall. Special announcement was made of an extra meeting to be held on May 30th for the exhibition of novel forms of apparatus, products, etc. The Section on this occasion will be the guest of the Chemists' Club.

INDUSTRIAL NOTES

The H. K. Porter Company of Pittsburg, Pa., has taken an order for 3 25-ton locomotives to go to southern Mexico.

According to figures which have appeared in print, the net profits of the National Salt Company for the first year of its existence were $543,000.

The Pennsylvania Steel Company of Steelton, Pa., has received an order for bridge material for the Vera Cruz & Pacific Railroad that is reported to be worth $250,000.

A large plant for the manufacture of hydrofluoric acid is projected at York, Pa., by parties interested in fluor spar mines in Kentucky, oil, Gem roofing paint and Majestic babbitt metal

The Wagner Electric Manufacturing Company of St. Louis, Mo., has established a foreign department, of which Mr. Edward E. Goudey will have charge, with New York offices in the Havemeyer Building.

It is stated that a plant for the manufacture of zinc oxide is to be erected somewhere near Chicago by the Lanyon Zinc and Oxide Company, in which Samuel Lanyon and George M. Vail are interested.

The Williams Patent Crusher and Pulverizer Company, of St. Louis, Mo., manufacturer of the Williams patent hinged hammer crushers and pulverizers, is increasing its shop equipment by putting in additional planers, grinders, shearing machinery, etc.

The A. & P. Roberts Company of Philadelphia, Pa., has booked an order for the superstructure for a highway bridge over the Kee Lung River in Formosa, and also another order from the Imperial Government of Japan for 950 tons of structural material.

The Spanish-American Salt Company, capital $3,500,000, has been incorporated under the laws of New Jersey. The company is to mine and deal in salt. The corporators are A. Lupo Gesulfo and Palma Mallarca, of Spain; Juan M. Ceballos, A. S. White, F. F. Culver and Mark W. Maclay, of New York, and O. L. Gubleman, of Jersey City.

The Sullivan Machinery Company, of Chicago, Ill., recently sold 15 machine drills for the Ibex Company of Leadville, Colo., to the Elkton Consolidated Gold Mining Company at Elkton, Colorado, 7 drills; to the Iron Silver Mine at Leadville, 3 drills; to the Victor Fuel Company, for their Hastings Mines, 2 Mitchell room and pillar electric under-cutter machines.

The J. H. Montgomery Machinery Company, of Denver, Colo., has recently sold to the Risdon Iron Works, San Francisco, one 1-horse whim, with rope, buckets, etc.; to J. P. Worrell, Magdeline, N. M., a 1-horse whim and equipment; to the San Blas Gold Mining and Milling Company, Boulder County, Colo., a 40-H. P. boiler, hoister and supplies; to Roy & Titcomb, Sonora, Mexico, a 1-horse whim and equipment.

The report of the Sloss Iron and Steel Company, which has been absorbed by the Sloss-Sheffield Steel and Iron Company, but which has not yet lost entirely its identity, for the year ending January 30th, 1900, shows earnings amounting to $802,667, which, after deducting $263,753 for interest, taxes, depreciation and renewal fund, leaves $538,914 net profits. Out of this a dividend of 1¾ per cent. was declared in March, practically all of which goes to the Sloss-Sheffield Company. The profits, it is given out, were made on an average selling price of iron at $11.10 per ton at Birmingham, whereas the average price is now over $16.50 and $17. The profit on coal is now more than 50% greater than a year ago.

The Standard Screw Company, recently incorporated with $1,500,000 capital, has been organized, possession of the plants having been

acquired on April 1st. The company is a consolidation of the Worcester Machine Screw Company, the Chicago Screw Company of Chicago, the Detroit Machine Screw Company of Detroit, and the Westerman Company of Lockport, which operate large rolling mills. The officers are: President, C. E. Roberts of Chicago; vice-president, A. W. Gifford of Worcester; secretary, George Trall of Detroit; treasurer, C. M. Rawlins of Chicago. The Board of Directors includes these officers and Edward B. Dolliver of Worcester, and General Manager Sutlieff of the Lockport Mills.

The Edward P. Allis Company of Milwaukee, Wis., has closed a contract with the Standard Milling and Smelting Company of Colorado City, Colo., for the entire machinery for a chlorination mill to have a present capacity of 300 tons per day, with certain features to readily increase to 500 tons. The machiney is practically a duplicate of the mill owned by the Colorado-Philadelphia Reduction Company, built by the Allis Company at Colorado City some 4 years ago. Holthoff-Wethey mechanical roasters and dryers will be used throughout. Twelve sets of Reliance rolls and 12 chlorination barrels form part of the equipment. The contract for the delivery of the machinery will enable the new mill to start up by January 1st next. Electric power will be used by the distribution motors through the mill. The mill was designed by Mr. H. C. Holthoff, chief engineer of the mining department of the E. P. Allis Company.

The American Casting Machine Company, recently incorporated at Trenton, N. J., with an authorized capital of $500,000, is a consolidation of the plants and letters patent owned by Heyl & Patterson of Pittsburg, the Pittsburg Casting Machine Company and the patents of the Carnegie Steel Company for the Uehling method for conveying and casting metals and of the Davis Casting Machine Company of Warren, O. The consolidation, it is said, will put an end to litigation that has been pending. The directors and officers of the company are: Julian Kennedy, president; James Gayley, vice-president; W. J. Patterson, secretary; Edmund W. Heyl, treasurer; James Scott and Walter Lyon.

The machines produced under the various patents, which are held by the combined interests, sell at about $25,000 each, varying according to market conditions. Each machine has a capacity of about 1,000 tons in ten hours.

TRADE CATALOGUES.

The Fort Wayne Electric Works of Fort Wayne, Ind., issues Bulletin No. 1007, which describes the good points of the Wood focusing series arc lamp.

"Modern Methods of Lifting Water," a circular issued by the Link-Belt Machinery Company of Chicago, Ill., shows how the Link-Belt water box elevator may be used for irrigation work or in draining shallow pits or mines.

Catalogue No. 1, entitled "Boilers and Engines," is an illustrated pamphlet of 50 pages giving specifications of a large variety of single and compound engines and several types of boilers made or carried in stock by the Risdon Iron Works of San Fransco, Cal. The catalogue also contains some useful tables.

Hecklemann & McCann, owners of mineral testing and sampling works at Mexico City, issue an illustrated pamphlet of 28 pages giving interesting information about their works and about testing plants generally. The pamphlet is printed in Spanish and English and gives the fees charged for the different tests.

Circular 1016, sent out by the Westinghouse Electric and Manufacturing Company of Pittsburg, Pa., describes the electro-magnetic traction system the company has developed. The system avoids the use of overhead wires or underground open conduits, connections between the cars and the supply circuit being through contact buttons.

Bulletin G, published by the B. F. Sturtevant Company, of Boston, Mass., tells of the good points of the Sturtevant generating sets with automatic horizontal or upright engines direct-connected to 4-pole generators. The company manufactures, among other patterns, a dust-proof generator and also a diminutive set known as the "Midget," where the weight has been reduced to the minimum per watt. Another pamphlet issued by the company, "Draft Without a Chimney," states the result of using mechanical draft at the company's works at Jamaica Plain, Mass.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods of any kind, and shall be pleased to furnish them information, catalogues, etc.

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GENERAL MINING NEWS.

ALASKA.

Koyukuk River.—Reports of rich placer diggings on the headwaters of this river are in circulation. The reports come apparently from interested sources. A stampede to the Koyukuk in 1898 found nothing.

ARIZONA.

Cochise County.

St. George.—This property in the Dragoon Mountains adjacent to the Peabody mines owned by the Federal Copper Company has been sold to Chicago men.

Mohave County.

(From Our Special Correspondent.)

Golconda.—The development consists of 2 shafts, 60 and 90 ft. deep, and 2 tunnels, 90 and 120 ft. long. The ledge is 5 ft. wide, averaging, it is said, $60 per ton by mill run; $60,000 have been produced. The ore carries gold, silver, lead and copper. The mine is in Union Basin, 6 miles from railroad by wagon.

Home Pastime.—This mine, at Mineral Park, about 5 miles from railroad, is developed by 2 shafts, one 50 ft. and another 100 ft. deep, and 300 ft. of drifts. The mine is wet, and pumps will have to be put in, as the whim is now handling 15,000 gals. of water daily. The pay streak is 4 ft. wide, and is said to yield 300 ozs. of silver and 3 ozs. of gold per ton; $25,000 worth of ore has been shipped.

Yavapai County.

A strike of gold ore is reported on the hills some 20 miles north of Jerome, but accurate information regarding the find is lacking.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Catherine.—The shaft is pumped out at this mine, near West Point, and sinking has begun. The new hoist works very smoothly.

Kennedy.—The new 3-compartment shaft is down 1,053 ft., and is going down 20 ft. per week. No crosscuts will be run until 2,000 ft. is reached. The mine is worked full handed, and the mill is running steadily.

Lincoln.—On the 1,200-ft. level crosscutting west continues. About 1,000 tons of ore from the 500-ft. level is to be milled at one of the neighboring mills.

Nevada County.

(From Our Special Correspondent.)

Home.—Development work on this property on Deer Creek, 1½ miles west from Nevada City, progresses rapidly, and ore sent to the Cadmus mill yields handsome returns. A 20-stamp mill is to be erected soon.

Mountaineer Mining Company.—This company has begun suit in the Superior Court of Nevada County against J. C. Campbell, former superintendent of the Mountaineer Mine; William Quigley, Ralph White and Anton Miller, lessees of the Layton Mine, to compell Campbell to transfer an assignment of the bond obtained from Quigley et al., for the Layton Mine, which it is alleged Campbell procured as agent of the Mountaineer Company. An injunction is also being asked restraining the defendants from changing or in any way affecting the title of the mine. Thomas Williams, of San Jose, Cal., for 30 years superintendent of the New Idria quicksilver mines, has taken charge of the mine, which is 1 mile west from Nevada City.

Orleans Consolidated Mining Company.—This company has been incorporated to operate the Orleans Mine between Osborne and Ophir Hills, 1¼ miles south from Grass Valley. The directors are M. W. Fox, G. P. Thurston, G. D. Gray, J. W. Smith and H. B. Montague. The property is well equipped with machinery, the mill being run by water power.

Placer County.

(From Our Special Correspondent.)

Bellevue Consolidated Mining Company.—A 36-ft. wheel to run the new hoist has been put in. Work at shaft No. 2 on the Bullion claim has stopped, and work is resumed on the Bellevue shaft, which is 270 ft. deep. A drift is to be run on the 140-ft. to connect with the Bullion shaft. Seven men are employed under Superintendent S. Bartlett. The mines are 4 miles west from Auburn.

Hathaway.—Superintendent A. B. Eastwood reports that work on the new 2-compartment shaft is progressing rapidly, it being down 65 ft. The new 20-stamp mill is nearing completion. The property is about 3½ miles southwest from Auburn.

Hidden Treasure.—At this drift mine at Sunny South, 4 miles north from Michigan Bluff, the blue gravel channel is being developed to the right of and 32 ft. lower than the main channel. A compartment 20 by 40 ft. and 12 ft. high has been cut in the cement, for a machinery room, in which has been placed an electric hoist and an electric pump. This room is lighted by electricity. H. T. Power is superintendent.

Nigger Bluff.—This property, 3 miles southeast from Michigan Bluff, has been leased for 2 years to R. D. Brown and Wm. Hoffman, who are taking out some fine gravel.

Riverside County.

(From Our Special Correspondent.)

Golden Eagle.—The shaft at West Riverside is down 50 ft.; at the 75 ft. a crosscut will be run to test the ledge.

O. K.—The mill at Dale City belonging to Esler & Ingersoll, who own this mine, in the Monte Negras District, 50 miles northeast from Walters Station, has been moved 8 miles to the mine, doing away with the expense of hauling ore.

San Bernardino County.

(From Our Special Correspondent.)

Barstow Mill.—J. R. Lane is now superintendent of this mill, which is running continuously on ore mostly from the Randsburg District.

Gannon Gold and Copper Mining and Milling Company.—This company has been organized by W. A. Baker, T. A. Gannon, I. N. Inskeep, J. J. Shay and C. H. Baker, all of Los Angeles, incorporators, to operate 14 mining claims in the Arrow mining district. About 1,500 ft. of development work in shafts, tunnels and drifts has already been done. The veins are said to be large and well defined, carrying both gold and copper.

Tuolumne County.

(From Our Special Correspondent.)

Buchanan.—At this mine, 12 miles southeast from Sonora, the tunnel to tap the main shaft 200 ft. from the surface is in nearly 600 ft. and will be completed very soon. A steam pump will be put in and the mine pumped out preparatory to resuming work. The old shaft, 775 ft. deep, is full of water.

Dinsmore.—The main shaft is now down 300 ft. and the ledge still prospects well. A new tunnel has been started to tap the ledge 500 ft. below the surface. A full force of men is at work.

Dundero.—This mine, at Yankee Hill, 2½ miles east of Columbia, worked by ground-sluicing, has 7 men employed. The giant, with 300 in. of water, is steadily playing away on the gravel. A derrick for hoisting rocks and bottoming sinks, is also in use.

Dutch.—At this mine at Quartz Mountain, a transformer house is being erected just below the hoist. The Tuolumne Water and Power Company is having a branch pole line set up from the main line to the mine, and is about to install a 150 H.P. motor to drive the compressors, which will run the hoist and machine drills, and 2 others to run the mill concentrators and rock-breakers.

Four Oaks.—At this mine, ½ mile southeast of Big Oak Flat, the shaft is down 120 ft. and a drift run 100 ft. on the main ledge and 74 ft. of crosscuts are in ore. At a depth of 110 ft. crosscutting has been done 58 ft. in slate, assaying from $8 to $29 per ton. Eight men are employed.

Green Consolidated.—The shaft at this gold mine, 3½ miles above Sugar Pine, on the north fork of the Tuolumne River, has been retimbered to the drain tunnel level at 116 ft., and the drain tunnel has been retimbered. Work is resumed.

COLORADO.

Boulder County.

San Blas.—This mine, at Ward, has been equipped with a new steam hoist and is sinking the shaft another 100 ft., which will give it a depth of 315 ft.

Binford.—This mill, at Ward, is being repaired and will be equipped with Wilfley tables and operated as a custom concentrator.

Clear Creek County.

(From Our Special Correspondent.)

Beaver Valley Mining Company.—Pennsylvania people have just incorporated under this name to operate the Ajax property at Georgetown. James Clayton of Idaho Springs is the local representative.

Union Light and Power Company.—This company, working the electric lighting system of Silver Plume and Georgetown, is preparing to increase its capacity for supplying mines. The Lamartine Mine has closed a contract and will change from steam to electricity at once. The hoist and compressors will be worked. It will be necessary to build about 7 miles of line. The Joe Reynolds Mine is also preparing to take this power. It is now working pumps and all machinery with steam. The Pelican-Dives Company has contracted for power, as has the Griffith. The Mendota Mill is operating, as are other plants around Georgetown. It is intended to put in a plant sufficient to supply most of the mines in the silver belt with power at a saving of about 25% over fuel.

Gilpin County.

(From Our Special Correspondent.)

Mining Deeds and Transfers.—S. R. Snavely to J. E. Berger et al., ⅛ interest in Gold King group, Wisconsin District; J. W. Rice et al. to C. P. Collins, Scandia and North lodes, lease and bond; W. J. Blake to M. F. Riley, ¼ interest in Virginia Queen, ½ interest in Gold King lodes; W. B. Lewis to Lillian Gold Mining Company, the Lillian lode; R. St. J. Cleary to A. W. Stone, the Cashier group and Arrighi mill site, lease and option; C. E. Chase to George E. Ross-Lewin, Big Tom and Last Hope lodes; M. W. Tanner to Jos. B. Adams, the Bertha lode; J. B. Adams to the Bertha Gold Mining and Milling Company, the Bertha lode; J. Unterassner to J. W. Holman, the Hamburg lode; J. W. Holman to the Good Luck Mining Company,, the Hamburg lode; J. C. Jackson et al. to G. W. Forman, ¼ interest in Joe Welch placer; H. J. Kruse to the New Quartz Hill Tunnel Company, the Quartz Hill tunnel and tunnel site; T. Tregay to E. P. Waters, ½ interest in Farish placer; C. P. McNerney to D. P. Bonner et al., the Quinton lode claim; M. Centlivre to C. C. Johnson, the North Star lode; S. K. Longan to Lillie Schradsky, ½ interest in Eclipse group, Farish placer, title bond and lease; C. Hesseibine to the Argosy Gold Mining and Milling Company, the Liberty and Free American lodes, title bond.

March Shipments.—March shipments were 249 cars or 4,625 tons of smelting ore, concentrates and crude ore shipped to outside points.

H. J. Sears, of Central City, and Delaware, O., and New York men have purchased 3 miles of placer ground on North Clear Creek and intend to carry on extensive placer operations this season. A large flume will be built. Track placer machines and large derricks will scrap up the dirt and deliver it to the flume.

Clark-Gardner.—Sinking has been stopped at 742 ft., where drifting has opened a nice body of ore. The smelting ore carries values of $50 per ton. J. W. Bostwick, Central City, is manager.

Gunnell Gold Mining and Milling Company.—Three gold retorts, weighing 40 lbs. avoirdupois, worth about $10,000, were cleaned up after a month's run on ores from the Gunnell. The 1,150-ft. pump shaft is cleaned out and will be sunk about 200 ft. deeper. F. C. Young, Central City, is manager.

Kansas-Burroughs Consolidated Mining Company.—During March the properties shipped 480 cars of 4,075 tons, most of it to the stamp mill. P. McCann is manager.

Robert Emmett.—A free gold strike was made in sinking a winze at 450 ft. W. H. Nicholls, Central City, is manager.

Lake County—Leadville.

(From Our Special Correspondent.)

Leadville Output for March.—The output was 70,000 tons of all classes of ore. In addition to the product handled by the local smelters, shipments were also made to Utah, Kansas City, Ingalls, Ind., Iola, Kan., Mineral Point, Wis., Chicago, Wales and Belgium. The gross value is estimated at over $1,000,000.

A. M. W. Mining Company.—The company shipped 3,600 tons of sulphide ore in March, including the product of the Mab Mine. The Midas claim shipped 4,500 tons of ion ore, considerable of it going to the Germania Smelter at Salt Lake, Utah.

High Five Mining Company.—I have had a number of letters lately inquiring about the work done by the High Five on the Only Chance Claim on Rock Hill. The High Five Company is not working that lease. It is worked by another set of lessees who are doing some exploration. The High Five people have an agent in Paris who is disposing of considerable stock on the alleged work being done on the Only Chance.

Home Mining Company.—This was the heaviest producer in the district in March. The ore came from the Penrose Starr and Bon Air shafts. The expenses for the month were $40,000.

Poverty Flat Mining Company.—This new company purposes to conduct development work in the Poverty Flat adjoining the City of Leadville. D. R. C. Brown, of Aspen, is president and Jas. Downing, of Aspen, treasurer. W. H. Bryant, the well-known railroad man, is secretary. J. K. and S. M. Carleton are managers of the new company, which will work 80 acres of patented ground just east of Fryer Hill. The combination includes 9 claims, on which shafts have been sunk from 25 to 350 ft. At present work will be at the Jason shaft, 320 ft. deep, which is now being retimbered.

Printer Girl.—A 3 years' lease has been secured on ths property on Printer Boy Hill by Messrs. John McAllister and B. F. Morley, who are after gold ore body.

Revenue Mining Company.—In Revenue shaft No. 1 at 535 ft. the blue limestone was cut. This shows the existence of the Leadville porphyry lime contact further southwest than has been explored and explodes the theory that the Revenue people were working in a fault. Sinking on shaft No. 2 will be resumed at once. The company is headed by Boston men, who have a large acreage on West Rock Hill.

Rock Hill Mining Company.—Satisfactory results are reported from the drift being run at the 600-ft. level, where a large iron body has been encountered. Shipments will not begin until the contact is thoroughly explored.

Silver Cord Leasing Company.—This company, headed by Messrs. Schumacher and Cooper, has obtained a lease from the Yak and will run an upraise from the tunnel to the main workings of the old Silver Cord Mine and begin shipments of low grade ore.

San Miguel County.

Saw Pit Gold Mining Company.—This company at Saw Pit has placed an order with the E. P. Allis Company of Milwaukee, Wis., for a 10-stamp concentrating mill to be run by electricity. J. C. Caldon is consulting engineer.

Summit County.

Eldorado.—This mine, at Robinson, is shipping 50 tons of smelting ore daily.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Reports are still going round that a number of the mines are to be closed pending a settlement of the difficulties with the railroads and smelters over high transportation and treatment charges. The Portland, it is understood, has already laid off about 200 men, about ½ of the force employed. Ore hauling was practically suspended most of the week on account of a severe snowstorm.

Bonnie Nell Gold Mining Company.—This company is erecting a new shaft house and machinery on the Bonnie Nell claim on Raven Hill. The property is near the Moose, which was a heavy shipper in the early days.

Gould Mining and Milling Company.—Good reports still continue from the strike made last week on the Kittie Lane claim of this property. This claim is situated just south of the Elkton, and is being worked under lease by Mr. E. C. Fletcher and associates.

Pinnacle Gold Mining Company.—The famous Whipp & Glenn lease on the Lansing claim, on Bull Hill, is practically closed down. A large amount of ore has been shipped, but it is understood that though the lease has several months to run, little work will be done. It is rumored that the ore dips into another claim of the company's.

Strattons Independence, Limited.—The output for March is reported as 2,300 tons of the average value of $87 per ton. The gross output was $249,000. The mine is still a heavy shipper.

Victor Gold Mining Company.—According to the last report, the outlook is rather discouraging. The veins in levels Nos. 10, 11 and 12 are without pay values. At the date of the last annual report it was thought that if the main shaft were sunk, pay values would again be found. The shaft is now 1,030 ft. deep; crosscuts show the veins well defined, but a large amount of exploitation work shows no values. It is the opinion of the management that sinking should continue, but on December 31st, 1899, the company was in debt $122,000, and this debt has been increased on March 15th to approximately $145,000. The company's credit is exhausted, and it will be necessary for the board of directors to devise ways and means of obtaining funds. From the Isabella, which adjoins the Victor, some very rich ore has been shipped from the neighborhood of 1,000 ft. The Victor Company has paid in dividends since its organization $1,155,000.

FLORIDA.

(From Our Special Correspondent.)

A number of new phosphate plants will either be moved or new ones erected within a few weeks and several mining companies are eagerly seeking new deposits. The Camp Phosphate Company of Albion, Fla., has purchased over 6,000 acres of mining land in Citrus County, and it is reported that this company intends erecting several plants upon this property at once. Probably the most important event of the month was the sale of the entire property of the Imperial Phosphate Company for $85,000 to the Central Phosphate Company of Ocala, which also mines extensively in Tennessee and South Carolina. This land, which consists of about 1,600 acres, is located south of High Springs, along the line of the Plant System, and it contains some good outcrops and other indications of high grade phosphate. Several deposits have been located on it. The Central Phosphate Company will probably erect 2 complete phosphate plants very soon.

The Clark Phosphate Company will probably build a plant in Citrus County. It is also negotiating for the erection of another in Levy County. The present office of this company is in Ocala.

IDAHO.

Latah County.

Mica Mines.—The principal mica veins are near the headquarters of Big Bear Creek, 26 miles east of Moscow and 13 miles east of Vollmer. The most important mine is the Muscovite, owned by Chicago parties. The mine has lain idle some years, but now 30 men are at work and a new 400-ft. tunnel has been started. Four car-loads of crude mica are in hand and 300 lbs. of cut sheets were recently shipped from Vollmer. Development work is being done on the claims of the Idaho Mica Company.

Owyhee County.

De La Mar Mining Company.—Manager Huntley's report for February states that the output for the month was 3,988 tons of ore assaying $10.71 gold and 97c. silver; the tails from the vats assayed $1.99 gold and 49c. silver. The yield was $38,784 gold and $1,916 silver. The total estimated income was $38,382 and the expenses were $33,270.

Shoshone County.

Chloride Queen Mining and Milling Company.—This company's tunnel in Sunset Peak above Wallace is in over 700 ft. It is following vein carrying gray copper and showing some gold.

Consolidated Tiger & Poorman.—This property at Burke is now controlled by the Buffalo Hump Mining Company. New ore shoots found by drill work are being opened and extensive surface improvements have been made. The largest of the new ore bodies is reported to be 600 ft. long and to show 7 or 8 ft. of clean ore. The shaft is down over 1,700 ft.; on the 1,600 ft. level the old ore body is reported to be 16 ft. wide. On this level a pumping station 75 by 35 by 20 ft. has been cut and 2 duplex condensing differential plunger pumps with mechanically operated valves built by the Nordberg Manufacturing Company, of Milwaukee, Wis., are being installed. They will each have a capacity of 750 gal. per minute against a lift of 1,500 ft. The pumps are belted to two 250 H.P. General Electric motors, the flywheels being 16 ft. in diameter with a 31 in. face. The weight of the entire plant is over 200 tons; it will replace 6 or 8 small pumps, and its installation will cost $65,000. The 10 in. column pipe is of ½ in. steel. The motors will be run by a 400 H.P. dynamo at the electric power station 1¼ miles from the mine, using a water power with 850 ft. head. A 2,000 volt current will be used without reduction, the copper wires being carried down the shaft in an armored cable. To provide for a shortage of water power a 300 H. P. Stirling boiler has been added to the steam plant, making the boiler capacity 1,000 H.P. The mill has been overhauled, says the Spokane "Spokesman Review," and additional ore dressing machinery put in. To meet the increased capacity the output of the mine will be hoisted in 4-ton skips, the ore being dumped from the mine cars into the skip shoots at the various levels. At present 3-deck cages are used and the change will reduce the number of men needed and give increased speed. There will be a bottom deck under each skip for lowering timbers or men and hoisting waste. The skips dump into a large bin from which the ore will go to a No. 6 Gates crusher with a capacity of 50 tons per hour. From the breaker a conveyor will take the ore to the mill building. The company owns 6 patented claims and 6 or 7 others on which patents are pending. It is a New York corporation and the stockholders are more or less interested in the Empire State-Idaho Mining and Development Company, that owns the Empire State mines at Wardner.

Hunter.—The new mill at Millan is working well and 50 more miners have been taken on.

Independence Consolidated Mining Company.—This Wardner company has made final payment on the Gettysburg group of 6 claims and a contract has been let to drive the tunnel now in 1,000 ft. to ore. K. J. Hanley of Wardner is one of the largest stockholders in the new mine.

MICHIGAN.

Iron—Marquette Range.

Dunn.—This mine at Crystal Falls is to be reopened by Corrigan & McKinney, who bought the lease from Schlesinger. A new shaft will be sunk 800 ft. The surface plant is being overhauled and part will be removed to the Lamont Mine.

Oliver Mining Company.—This company is reported to have found a new body of ore of Bessemer grade. The ore is soft and is said to carry 59% iron. It is 1 mile south of the Gibson Mine at Amasa. The company is reported to have under consideration the unwatering of Lake Fumee, north of Iron Mountain, if exploration now under way shows iron ore in the lake bed.

Houghton County.

(From Our Special Correspondent.)

Calumet & Hecla.—At the mills 16 Wilfley concentrators have been installed, but only one is in commission. Eight of the concentrators will take the place of finishing jigs and the others will replace slime tables.

Franklin Mining Company.—This mine has

struck the Boston & Albany conglomerate lode at the Franklin Junior location, and entered it 8 ft. by a cross-cut from workings on the Pewabic. The north, or Klondike shaft at the Junior is now timbered to the ninth level, and sinking is being done on the tenth.

Quincy Mining Company.—The output for March was 800½ tons. Work has begun on the new rock house at Shaft No. 7, the steel work being furnished by the Wisconsin Bridge and Iron Works of Milwaukee. At the mill the Wilfley concentrators have been received and are being installed. The new pump recently completed by the E. P. Allis Company of Milwaukee is being erected. It has a capacity of 16,000,000 gal. every 24 hours.

Keweenaw County.

(From Our Special Correspondent.)

Arnold Mining Company.—Wesley Clark, superintendent, has gone East to confer with the management. He reports the mine as showing up well in the deeper levels.

MINNESOTA.

(From Our Special Correspondent.)

It is expected that shipments from Minnesota Mines will be somewhere as follows this season: Carnegie interests will ship about 2,250,000 tons, of which 750,000 tons will be from the Vermilion range; the Federal Steel Company's subsidiary companies will mine about as last year, except as noted. Chandler and Minnesota will ship 800,000 and 400,000 tons respectively, Genoa and Auburn about 400,000 tons each, but Elba will rise to 100,000 tons, and Fayal may pass 1,500,000 tons, having already made agreements for that amount. Mines of the Lake Superior Consolidated Company and those operated under lease from it by others will ship about 3,000,000 tons, against 2,175,000 tons last year. Mahoning will ship 1,000,000 tons, Corrigan-McKinney & Company's mines about 500,000 tons, Sparta 300,000, Franklin 300,000, Spruce and Cloquet 200,000, Colonial 150,000, Penobscot the same, Roberts 75,000, Williams 50,000, and some from new properties not included in this list. These will all make a total of nearly 12,000,000 tons from Minnesota.

The western end of Lake Superior is free of ice, and boats have run from Duluth to Two Harbors, Ashland and elsewhere. No large cargo vessels have come into the lake from the east yet.

Iron—Mesabi Range.

(From Our Special Correspondent.)

In section 30, T. 58, R. 20, Pillsbury & Brown are test pitting; in 32 Rood and others are working on lands belonging to the Day interests; in 6, T. 57, R. 20, just south of Rood, McGregor & Dessau have found ore. In sections 27 and 28, T. 58, R. 20, interests connected with the Oliver Company are sinking pits and in 27 the Misabe Company (J. J. Hill) and Myers Brothers are working. The east ½ of the northwest, the west ½ of the northeast, and the northeast of southwest, in all 200 acres, of section 24, have been sold to the Lake Superior Consolidated Mines.

Cincinnati Iron Company.—This company has leased its mine at Biwabik to G. E. Tener, of Pittsburg, on a 25c. royalty. The mine was opened in 1892, but has been idle some years. There is considerable ore shown up, but the mine has been badly butchered.

Dessau Iron Company.—Capt. R. P. James and a force of miners have arrived at Hibbing from Iron Mountain, Mich. A shaft is started which will ship this year.

Iron—Vermilion Range.

(From Our Special Correspondent.)

Explorations are to be started on section 25, east of Ely, by the Minnesota Iron Company. This section was explored by this company some years ago, without success, and has been worked over since by Jones & Laughlins and others. The Minnesota Company has also taken a lease on parts of section 7, T. 62, R. 13, at a 25c. royalty and a 25,000-ton minimum. Explorations are under way.

A deed has been filed to C. A. Congdon, of land in section 4, T. 62, R. 13, for $10,000, a second $10,000 to be paid when 200,000 tons of ore have been mined. There have been many explorations in the immediate vicinity. The ore has not been of good quality or in large bodies. It is said that present finds are better.

Cook County.

(From Our Special Correspondent.)

Negotiations are on foot looking to the disposal of the lands of the various so-called nickel and iron mining corporations. The American Iron and Nickel Company, formerly the American Nickel Mining Company, has been authorized to pay $20,180 for a large acreage in this region, and the Johnson Company has a sale of its entire holdings pending, it is said.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The market has been firmer due to the stiffening of the spelter market. There was a strong demand for fancy ore, but as all the surplus had been picked up the week before and contracts made for much of last week's output, there was a heavy shipment of medium and low grade ores and there is scarcely a pound of surplus ore in the district.

Prices ranged from $30 to $33 per ton for the higher grades and the Old Colony Zinc and Smelting Company and the Sphynx Mining Company at Neck City were among the companies receiving the highest price. The average price for 60% ore was about $30 per ton. Lead sold all the week at $27 per 1,000 lbs.

During the corresponding week, last year, top grade zinc ore sold at $46 per ton and lead at $25.50 per 1,000 lbs. The sales were less than this week by 1,236,600 lbs .of zinc and 43,080 lbs. of lead, but the value was greater by $55,544. For the first 14 week last year the sales were less than this year by 1,975,090 lbs. of zinc and 1,996,180 lbs. of lead, but the value was greater by $349,956.

As compared with the previous week, the zinc sales were greater by 16,250 lbs., but the lead sales were less by 31,510 lbs. and the value was less by $1,720. Following is the turn-in for the week ending April 7th.

	Zinc, lbs.	Lead, lbs.	Value.
Joplin	2,146,110	404,450	$42,039
Galena-Empire	2,610,640	238,040	43,009
Carl Junction	206,790	.....	3,101
Carterville	2,272,610	237,630	39,369
Webb City	538,020	34,430	8,462
Belleville	415,180	3,850	6,331
Central City	451,260	3,490	.....
South Jackson	212,340	16,800	3,427
Cave Springs	112,470	10,100	8,462
Duenweg	254,690	47,170	4,798
Oronogo	669,880	10,980	9,864
Stotts City	166,620	.....	2,499
Neck City	245,610	.....	3,930
Aurora	1,665,000	45,840	19 980
Alba	38,740	.....	550
Granby	350,000	18,000	5,000
Mosciet	127,700	.....	894
Dade County	87,820	.....	615
District total	12,571,780	1,971,990	$202,124
Total 14 weeks	140,848,810	15,513,790	$2,142,434

Mining Land Sales.—Crowe & Ping have sold their mill and lease of 8 lots on the South Side ground at Galena to an Eastern company, which is stocking it at $150,000. The property will be under the management of J. T. Framburg of Chicago. A. O. Nichols has sold the Dividend Mine at Midway to Boston parties for $30,000. Bucklen & Warfield have purchased a 2/3 interest in 312 acres of land at Spurgeon, Newton County, Mo. The Belle C. Mine and lease of 5 lots on the American-Cornfield tract at Carterville has been sold to Jeffrey D. Lindsay for $45,000, who transferred it to the Joplin-Galena Consolidated Lead and Zinc Company for $50,000. The property was owned by A. A. & Walter Cass, A. F. Carmean and George Warne. The same company also bought the Gray Goose Mine and lease of 4 lots on the E. N. Perry ground at Carterville for $45,000, paying Mr. Lindsay a commission of $7,500. M. R. Doane and G. F. Jones have sold their 20 acre lease at Block City, south of Belleville, for $8,500 to George H. Curtis, who transferred it to Gibson Kelley for $30,000 and, according to the county records, transferred it to the Manhattan Lead and Zinc Company for $29,000. Joseph Fahlenbock purchased 20 acres of Section 25, T. 28, R. 34, for $20,000, and has resold 25/32 for $17,265 to men who will work the land with him. The Tomahawk Mining Company, of Kansas City, Mo., capital stock $25,000, is incorporated by F. A. Strickland, M. H. Lossee, Florence Lossee, W. R. Clark of Kansas City and A. Howen of Tomahawk, Wis.

MONTANA.

Deer Lodge County.

(From Our Special Correspondent.)

Coloma District.—A. B. Browne was in Butte last week purchasing hoisting machinery for the mines which he has leased. He expects to develop many of the properties, especially the Mammoth Extension and the Katie.

Montana Mining and Extraction Company of Missoula.—This company has been incorporated by J. B. Collins, Wm. Q. Ranft and Arthur B. Browne of Missoula to work the tailing dumps of the Ontario Mine and mill at Ontario near Helena. The company is capitalized for $12,000, all held by the 3 men. Leases have been taken on the dumps and operations will consist of cyaniding the tailings in open tanks by the dioxide-cyanide process, the state rights of which are held by the Montana and Denver Company of Bearmouth.

Nancy Hanks.—S. Ritchie, the owner of this property at Garnet, is moving the hoisting machinery to the Copper Cliff District, where it is being put up on the Copper Cliff Mine. Mr. Ritchie is interested in the bond of $50,000 lately taken by a company on this property.

Shamrock.—The force in this Garnet mine has been increased to 20 men on each shift. A promising new ore body has been opened.

Lewis and Clark County.

(From Our Special Correspondent.)

Old Amber Gold Mining Company.—This company, working the Golden Messenger and other mines at York, has dismantled the old Bryan Mill, and is putting in 10 stamps with tables as a starter. The new mill will be in running order during April. It is intended to increase the capacity later. The company is composed of Buffalo, N. Y., people, represented at the property by J. C. Collins, with Tom Travis superintendent.

Madison County.

(From Our Special Correspondent.)

Garnet.—Development work has been going on all winter in this mine at Pony. W. H. Wood is manager.

Bowery.—This old property, at Silver Star, has been very prosperous for the past year. Glass Brothers & Berkin are working it, and producing a car per day of shipping ore which nets $30 per ton. A cyanide plant will be put in at once to treat the large tonnage of $10 and $12 rock which is on the dump. It is estimated that there is 3 ft. of backs in sight which will average 3 ft. wide. John Berkin is manager.

Madisonian.—At this mine near Red Bluff, recently bought by the Leiters of Chicago, goes on with vigor.

Park County.

Montana Coal and Coke Company.—The company is introducing electric mining machines at its mines at Hoor and Aldridge. A new washer and bunker, with a capacity of 1,000 tons of coal per day, is in successful operation As soon as the weather will permit, ground will be broken for 103 additional ovens, making when completed a combined capacity of 206 ovens.

Silver Bow County.

Nipper.—F. Aug. Heinze has brought suit against the Anaconda Copper Mining Company, Montana Railway Company, Butte, Anaconda & Pacific Railway Company, Edward Hickey, John M. Steward and Arthur P. Heinze. Plaintiff claims that he is the owner in fee simple of an undivided 31-36 interest in the property, and the Anaconda Company is the owner of a 5-36 interest; that Edward Hickey holds a mortgage lien upon an undivided 16-36 interest. It is alleged that the property cannot be partitioned or divided without great prejudice and injury to the respective owners, and a sale of the whole is necessary to fairly and evenly apportion the value among the owners, and that it would be greatly to the advantage of all the owners to have the same sold. The plaintiff asks that he may be adjudged to be the owner of a 31-36 interest and that the whole may be sold by order of the court.

NEW MEXICO.

Bernalillo County.

(From Our Special Correspondent.)

Cochiti.—The electric line between Madrid and the mines is rapidly nearing completion. It is expected that this line will furnish power and light to all of the mines, as well as light for the streets and houses of Bland.

Old Abe.—Thomas Shields is doing development work on this claim and has found a good bit of ore that runs about $40 per ton.

Colfax County.

(From Our Special Correspondent.)

Consolidated Verde.—Since this company assumed control last fall a large amount of development work has been done on its Contention and Thunder groups. The veins are on the contact of porphyry and quartzite, and carry gold, silver and copper. A carload of ore from the Thunder is being sacked for shipment to the smelter. Lansing, Mich., parties are the owners, and C. O. Tompkins is agent.

NEW YORK.

Slate.

Eagle Red Slate Quarry.—This quarry at Middle Granville has been purchased from R. B. Pritchard by G. T. Matthewsen & Comypany of Boston. Increased work is to be done on the quarry.

PENNSYLVANIA.

Slate.

Bangor Star Slate Company.—The properties owned by this concern are the Gum farm of 115 acres in Washington Township, the Bangor Superior, Bangor Star and the Isaiah Davey tract. Roofing slate, blackboards, school slates and general mill stock are manufactured. The officers and directors are G. W. Mackey, president; Harry A. Mackey, secretary; F. A. Van Valkenberg, treasurer; James F. Conway, George F. Graham, and ex-Judge Jay Gordon, of Philadelphia. The superintendent and general manager is David Stoddard.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Mica Shipments.—Last week 300 tons of mica were shipped from Custer to the Chicago Mica Company at Valparaiso, Ind. The price was

about $40 per ton. This company has started in to buy all the old mica dumps in the county. C. F. Gradon, of Chicago, representing the company, will return to Custer in 3 weeks to begin developing the Mayflower group west of Custer. He will put in a steam hoist and air compressor and sink a shaft 200 ft.

Nickel Ore Discovery.—A vein of nickel ore is reported found a short distance east of Custer on French Creek. Tests made by Dr. H. H. Reinbold, of Custer, show about 3% nickel at the surface.

Black Hills Porcelain Clay and Marble Company.—This company has acquired the claims containing kaolin, white and blue marble, lithograph stone, onyx and mica. The company will begin work on the clay and marble next week. The clay seam is about 12 ft. wide and a shaft has been sunk on it 25 ft. B. R. Noble, of Yale, Mich., is president of the company.

Graphite.—R. C. Pearsons, of Adams, Neb., has become interested in some claims 1 mile south of Custer. An analysis shows 39.5% graphite at the surface. Preparations are being made to work the claims. The company will sink the shaft to the lower contact, about 300 ft. A cyanide plant is to be erected.

Lawrence County.

(From Our Special Correspondent.)

British-American.—The British-American Gold and Copper Company has its shaft down in Butcher Gulch, nearly 200 ft., and the vein of ore has widened from 12 in. to 5 ft. The average of the ore in the drifts and upper shaft is about $4.50 per ton.

Decorah.—The Portland Mining Companies have purchased this mine in the Portland District. An air compressor has been put in and a long tunnel is being run to ascertain the value of the ore on the lower contact.

Detroit & Deadwood Company.—This company has encountered a vertical of copper and gold ore at its City Creek claims in Deadwood. Work has been temporarily stopped on the long tunnel and is centered at the shaft.

Galena Mining Company.—Ore has been found in a number of places on the company's claims and the ore bins at the Hoodoo and Eureka mines are being filled with a fine grade of pyritic ore. Shipments to the Deadwood smelter will begin as soon as the roads will permit. The company employs about 30 men. H. H. Armstead, of New York City, is general manager.

Harrison.—Regular shipments are made from this mine in North Lead District, to the Deadwood and Kansas City smelters. Considerable wolfram is being stored for shipment.

Two Johns.—Miners have begun an upraise in this mine, at the head of Squaw Creek, owned by C. A. Hallam and associates, of Chicago. About 2,000 ft. of drifts and tunnels have been driven since the mine was purchased from H. K. Rua, of Deadwood. A large amount of low-grade ore has been blocked out.

UTAH.

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week ending April 7th the different smelteries sent forward 26 cars, or 1,108,742 lbs. lead-silver bullion; 4 cars, or 208,363 lbs. copper bullion. In the same week there were shipped from the several camps 73 cars, or 2,915,890 lbs., lead-silver ore, and 4 cars, or 190,000 lbs., copper ore to smelteries outside of the State.

Bingham Copper and Gold Smelter.—On Monday a contract for excavation, which means the removing of 40,000 cu. yd. of earth, will be let and Mr. Nutting says there will be 5,000 tons of rock used in the foundation. The Rio Grande Western will have the railroad spur finished to the smelter site by May 1st.

Cyanide Products.—In the week of April 7th the consignments from cyaniding mills marketed at the Salt Lake office of the Consolidated Kansas City Smelting and Refining Company aggregated 2,120 lbs., or about $50,000. The contributors were: Mercur, Geyser-Marion, Sacramento and Star mines, all of Tooele County, Utah; Lucky Boy, Idaho and Bank of Twin Bridges, Montana.

Germania Plant.—The Germania plant of the American Smelting and Refining Company is to be further augmented by 3 pyritic furnaces, the contract for which is awarded to the Denver Engineering Works.

Juab County.

(From Our Special Correspondent.)

Tintic Shipments.—In the week of April 7th there were forwarded from the 3 railroad points of the district 101 cars of ore and 4 cars of concentrates, credited as follows: Centennial-Eureka, 42 cars; Mammoth, 10 cars ore, 2 cars concentrates; Swansea, 9 cars; Gemini, 9 cars; Godiva, 7 cars; Uncle Sam, 6 cars; Bullion Beck, 4 cars ore, 2 cars concentrates; Ajax, 3 cars; May Day, 2 cars; Four Aces, 2 cars; Carissa, Lower Mammoth, Richmond-Anaconda, Shoebridge, Bonanza, Silver Park, South Swansea and Tesora, each 1 car.

Grand Central.—Next week Grand Central will again enter the shipping list. The ore uncovering on 900-level is said to be as strong as that on 700, with equal values in gold and silver and higher in copper. The find was broken into of a sudden.

Lower Mammoth.—Several old timers aver that a body of rich chlorides is exposed, samples from which they have handled. The Lower Mammoth fad has so often been worked that one is apt to be a skeptic.

Sioux-Utah.—On April 4th the Sioux and Utah companies held their stockholders' meetings at Robinson. The Sioux officers are: Franklin Farrel, president; Robert D. Grant, vice-president-manager; Thomas Wallace, Jr., treasurer; Don B. Gillies, secretary-superintendent, who, with S. S. Jones, compose the directorate. The Utah officers are the same, with Thomas R. Cutter and William E. Racker on the board of directors. It was decided to prosecute exploration and it is said conditions are hope-inspiring.

Piute County.

(From Our Special Correspondent.)

Annie Laurie.—The transfer of Annie Laurie to P. L. Kimberley of Sharon, Pa., L. C. Huck, of Chicago, et al, on a basis of $210,000, or 70¢. a share, is practically consummated. Willard F. Snyder promoted the deal. Walter G. Filer is the mining engineer who represented the purchasers. It is understood the same purchasers are to exercise their options on the properties of the Snyder Investment Company, which means a remarkable reawakening for Gold Mountain.

Summit County.

(From Our Special Correspondent.)

Park City Shipments.—In the week ending April 7th, the smelter products sent out by the different mines aggregate 2,886,175 lbs., which were contributed as follows: Silver King, crude, 1,063,815 lbs.; concentrates, 444,850 lbs.; Daly-West, crude, 345,825 lbs., concentrates, 316,605 lbs.; Ontario, crude, 327,490 lbs.; Anchor, concentrates, 208,870 lbs.; Apex, concentrates 174,700 lbs. For March the shipments were: Silver King, crude, 4,265,965 lbs.; concentrates, 1,086,120 lbs.; Daly-West, crude, 2,910,595 lbs.; concentrates, 1,427,795 lbs.; Anchor, concentrates, 1,259,870 lbs.; Ontario, crude, 592,750 lbs.; silver sulphides—Russell process product—20,457 lbs.; Apex, concentrates, 170,090 lbs.; Valeo, crude, 37,720 lbs.; total, 11,771,332 lbs. Total shipments in March, 1899, were 6,043,700 lbs., showing an increase of 5,127,632 lbs. for the past month for the current year.

Daly-West.—A new ore treatment contract is made with the American Smelter and Refining Company, on the same favorable terms as the one now operative.

Ontario.—In the past week a consignment of 14,850 lbs. of silver sulphides, Russell process product from the Marsac mill, was marketed. Ore shipments continue to be held back owing to friction with the smelter management.

WASHINGTON.

Ferry County.

(From Our Special Correspondent.)

Butte & Boston.—The new vertical shaft is down 95 ft.

Chico.—A steam hoist, boiler and pump have been installed, and an air compressor and power drills have been received at the mine. The water is being pumped out preparatory to resuming work underground. The Republic vein passes through the entire length of the Jim Blaine claim and through the Chico. The Butte & Boston claim carries a distinct vein.

Manilla Group.—This property, situated at Kellar, on the south half of the Colville Reservation, is said to have a big showing. It is reported bonded to Patrick Clark, president of the Republic Consolidated Gold Mining Company, for $200,000.

Morning Glory.—A strike of very rich ore is reported, but the streak is said to be very narrow.

Mountain Lion.—The mill is running full capacity, and everything is reported as working satisfactorily and without a jar. Work has been resumed in the mine.

Quilp.—The winze is down 112 ft. below the tunnel. From the 50-ft. station cross-cuts show the vein 96 ft. wide. A drift through the center of the vein, 56 ft. south, averages over $22 per ton. From the 100-ft. station is a cross-cut 85 ft. to the hanging. Drifts here show values above $24 per ton. A compressor and hoist are expected daily.

Republic Consolidated Gold Mining Company.—The retaining walls and foundations for the new 200-stamp mill are completed and the framework is going up. The machinery is in transit. The old mill has been torn down and part of its machinery will be used in the sampling department.

Republic Reduction Company.—The company has nearly completed its 75-ton custom mill, which will use a chlorination process. Two big barrels, each weighing 22,000 lbs., are in transit, and the mill will be running soon. Offerings of ore for initial tests have been accepted from several companies.

WEST VIRGINIA.

Fayette County.

(From Our Special Correspondent.)

Carbon Coal and Coke Company.—This company, J. R. Thomas, president, has been shipping coal from its plant on Blake's Branch, near Cannelton, and expects to have some of its coke ovens in operation early in May. The coal comes from the No. 2 or gas seam.

FOREIGN MINING NEWS.

AUSTRALASIA.

New Zealand.

The Mines Department reports exports of gold in January at 38,289 oz. crude, against 33,249 oz. in 1899; an increase of 5,040 oz., or 15.2%. Exports of silver were 13,865 oz., against 20,753 oz. last year; a decrease of 6,888 oz., or 33.2%. The silver comes chiefly from the mines in the Ohinemuri District. The gold this year was equal to 35,668 oz. fine, or $737,246.

(From Our Special Correspondent.)

No sensational returns are reported by the dredges, but the yields have averaged about 27 oz. per week per dredge. The returns reported by some 30 Otago dredges aggregate about 32,000 oz. for the month. Many more dredges do not report their returns, but their yields are probably not so high on the average as those reported. When the Molyneux has fallen to its winter level and more dredges are at work, the output should be largely increased. During the 4 weeks ending March 15th the output from the Hauraki gold field amounted to £48,211 ($241,055). The following are the principal returns: Waihi, £20,556 ($102,780), from 8,307 tons; Waitchauri, £6,271 ($31,355), from 2,054 tons; N. Z. Crown, £5,176 ($25,880), from 2,800 tons; Kauri Freehold, £4,981 ($24,905), from 3,666 tons; N. Z. Talisman, £3,239 ($16,195), from 735 tons; Hauraki, £1,344 ($6,720), from 150 tons; Tararu Creek, £1,224 ($6,120), from 1,206 tons; Whangamata Corporation, £1,127 ($5,635), from 755 tons.

There is a slight decrease, due to a shortage of water at several batteries, from prolonged dry weather. The Waihi return is still well over £20,000 ($100,000). Of the other mines, the New Zealand Talisman has an excellent return, equivalent to £4 8s. ($22) per ton.

Queensland.

The Mines Department reports the total production of gold in the colony in January at 59,861 oz., of which 59,268 oz. was from quartz mines and only 593 oz. from alluvial working. The total shows an increase of 5,177 oz., or 9.4%, over January, 1899.

Tasmania.

The Mines Department reports the total value of the minerals produced in January at £99,981, an increase of £13,124, or 15.1%, over last year. The items of the production were as follows: Copper ore, 4 tons; copper (blister), 301 tons; gold, 10,047 oz.; gold pyrites, 6 tons; gold ore, 80 tons; iron ore, 216 tons; silver ore, 537 tons; tin, 167¼ tons; lead, 2 tons; silver-lead bullion, 175 tons; wolfram ore, 1½ tons; asbestos, 51 tons.

Western Australia—Kalgoorlie District.

(From Our Special Correspondent.)

Only within a few months has any of the 140,000 tons of tailings been treated by filter presses during January; 5,379 tons yielded 3,219 oz., nearly 0.6 oz. per ton. These filter presses are making a good extraction on the oxidized slimes and tailings. Preparations are being made on a large scale to treat the telluride ores, as at the Boulder Perseverance, save that 12 Edwards furnaces are to be used. This is the deepest mine on the field, and at 1,100 ft. the veins, as exposed, are all that even a London shareholder could wish.

Kalgoorlie.—This mine's new plant will soon be at work in treating about 100 tons per day. The mine is opened to 600 ft. and prospects are bright. It is anticipated that the veins at the upper levels, with a united width of 70 ft., will form one lode at greater depth. A large body of oxidized ore has been exposed at the 70-ft.

South Kalgoorlie.—This company's new plant will shortly be treating 2,500 tons of 2 oz. ore each month. The mine is being opened at the 6th and 7th levels, the 500 and 600 ft. The telluride is scattered through the rock; the vein, near the shaft, being 30 ft. wide and of a very good grade. This mine is not yet a producer, but this year it is expected to rank well.

CANADA.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Rossland Ore Shipments.—The shipments from January 1st to April 6th amount to 34,000 tons.

Contract System Accepted.—The Rossland

miner's union has accepted the proposals made by the mine's management. This agreement establishes the contract system of work at the mines. It is expressly stipulated that miners shall not be hired or discharged simply because they belong to the union. The outcome seems to favor the mine operators.

Le Roi.—The management has begun shipments of accumulated ore.

Queen Bess.—The Jacks Manufacturing Company recently shipped to the Rossland Mine a 4-drill compressor.

British Columbia—Yale District.

(From Our Special Correspondent.)

British Columbia Exploration Syndicate.—This corporation has bonded 4 claims adjoining the Lucky Strike group for $25,000, and has made a payment on account. The property is to be developed. Messrs. Argall & Morrish completed the deal.

Slocan Ore Shipments in 1899.—The revised figures amount to 19,423 tons. The shipments from January 1st to March 31st of the present year amount to 4,000 tons.

Ontario—Lake of the Woods District.

(From Our Special Correspondent.)

Combine.—As a result of some recent development work, it would appear as if the sheet of quartz had been traced to a large vein. It is maintained by some that in the mill run last autumn there was a considerable loss of gold.

Triggs.—Quartz has been struck at 200 ft. in main shaft. It left the shaft at about 40 ft. from the surface, and sinking for the next 150 ft. was through finely jointed trap showing only occasional strings of quartz. The air shaft is down 50 ft.

Trojan.—The company recently received a second instalment, amounting to $4,000, on the deal on which it has previously received $1,000.

Ontario—Sudbury District.

The Government of Ontario has cancelled the charter of the Vermilion Mining Company of Ontario, a company owning about 2,000 acres nickel and copper lands. The stock of the company belonged almost wholly to the Canadian Copper Companw, an Ohio corporation. The cancellation of the Vermilion charter, it is said, allows the property to return to the crown. and the Canadian Copper Company loses a very large tract of land. This is the first action of this kind ever taken by the Canadian Government. The cancellation has been placed on record at Sault Ste. Marie.

COAL TRADE REVIEW.

New York. April 13.

Anthracite.

The output of 3,136,000 tons of hard coal for March shows that month was up to the normal as a coal burner, though the output was 280,000 tons less than March, 1899, which was a March long to be remembered. The various companies seem to have their output under good control. There is some coal accumulating at seaboard points where prices show no improvement. Coastwise freight rates are very low and the fact that the movement eastward is light is evidence that supplies laid in last November when the scare was on are far from being cleaned up yet. In the West, as in the East, trade is quiet. Navigation is expected to open to Lake Superior points the coming week. It is doubtful if there will be much of a rush to get anthracite forward. Freight rates spoken of are 50c. to Duluth and somewhere between 60 and 75c. to Chicago. There is little doing at most inland points. At lower lake ports there is reported to be more coal on hand than a year ago.

At New York Harbor the steam sizes continue scarce, buckwheat being very hard to get. The large sizes are not wanted. We quote for free burning anthracite f. o. b. New York: Broken, $3@$3.20; egg, $3.30@$3.50; nut, $3.65@$3.75; stove, $3.65@$3.75.

Bituminous.

The seaboard soft coal trade continues active. All producers have their order books full and shipments are heavy. Many contracts for this season have been closed during the week. All were, so far as known, made under the usual terms and conditions and at full prices. Consumers are beginning to recognize that the advanced prices are to hold for this year, hence their willingness to make contracts. A speculative movement has started again, but as yet it does not amount to much, in most cases being merely a commission at above the regular prices. The contracts so far taken have been but the proportion of the regular output of the mines, which was in many cases all that the operators wanted. They are left with a margin to work on. The pinch last season, when many concerns had great difficulty in filling contracts, is well remembered.

The George's Creek miners struck April 12th, nominally for a 5c. advance, but really for a recognition of the union. The strike has been threatened for some time, but it is alleged that a very large percentage of the men were against going out and were induced only by well-known labor union methods. The operators are said to be a unit in their refusal to recognize the union, and are prepared to let the strike continue. All contracts made for this season contain a strike clause which makes the contract void while a strike is on. The strike involves 6 or 7 companies in the George's Creek District who employ about 6,000 men.

The far East is sending forward a good supply of orders. Along the Sound there is a large demand and consumers are taking all the coal they can get. New York Harbor trade is taking considerable, and all rail trade is active.

Transportation from mines to tide is slow, but is more regular than it has been. Car supply is fairly good. In the coastwise vessel market vessels are in good supply, with coal scarce at the shipping ports and rates are down; 75c. from Philadelphia to Boston and 65c. from Philadelphia to Providence, New Bedford and the Sound.

The bottom price for Clearfield coal is $2.65, New York Harbor port. At the lower ports Clearfield is $2.25; other standard grades, $2.50.

Birmingham, Ala. April 9.

(From Our Special Correspondent.)

No change has occurred in the coal market in this section, the demand for the product being very heavy and the production greater than ever before. The mines in Walker County, along the Southern Railway, bid fair to work hard all through the summer and then be behind in their orders. These mines have about given up the domestic market altogether and are supplying the Mississippi River and New Orleans trade. The mines in Walker County along the Kansas City, Memphis & Birmingham road are sending but a part of their production to this market, allowing their coal to go to Memphis and toward the West from this State. The Marion County mines, on the same road, are shipping their product to New Orleans and to portions of Mississippi by rail, going down the Illinois Central Railroad from West Point. The Shelby County mines are giving but little of their product to the home or domestic market either, sending their fuel to the Gulf. Bibb County coal is going toward the Gulf and foreign countries in boats landing at Pensacola, Mobile and Tampa ports. Jefferson County coal is being used in the local and domestic market. There is much coal going to the coke ovens.

Prices for the product are fair. There are no indications of any labor trouble in this State, and it is believed that when the time comes in June for the signing of a new contract the operators and the miners will get together nicely.

Chicago. April 10.

(From Our Special Correspondent.)

Anthracite Coal.—Business in anthracite coal has been rather small for the week. A cold spell toward the closing of the week caused small buying. There are upward of 100,000 tons on docks. Circular prices are firm, being $5.75 for egg and stove and $6 for chestnut.

Bituminous coal has been in good demand, manufacturing concerns having bought freely, strikes having been declared off and activity resumed. The increased price on soft coal has had rather a tendency to check buying, but under prevailing conditions soft coal must be had, and the payment of 25 to 50c. more a ton hinders buying but little, apparently. There is not a great deal of soft coal on hand now, but active work is going on at mines. The better grades of coal—those used for domestic lines—have been in splendid demand and at prices better than heretofore.

Cleveland, O. April 12.

(From Our Special Correspondent.)

The gravity of the situation in the coal trade affecting lake shipments appears to be growing daily. It is admitted that the transportation question is the great one in the coal business and unless a break can be made in the freight rates there can be no reduction in prices for consumers in the Northwest, something for which there has of late been a great outcry. The deadlock condition at present existing is due to two causes. In the first place, iron ore and grain shippers have tied up so nearly all the available tonnage that there is a far smaller fleet available for coal transportation than in former seasons. Secondly, the vesselmen, who have each year previously attempted to combine on the matter of rates, only to have the combine fall through, are this year standing solidly together in the determination to force shippers to pay rates proportionate to those prevailing in the iron ore and grain carrying trades.

While the market so far as season charters is concerned is in no better shape than it was a week ago, there was an evidence of progress during the past week in the closing of a number of charters for boats to load at Lake Erie ports for Chicago and Milwaukee with the understanding that the shipper would pay whatever freight tariff was ultimately fixed for the initial trips in this trade. This arrangement is particularly agreeable, not only by reason of the fact that it will enable the coal boats to get away on their trips up the lakes as soon as the ice disappears, but because it provides boats for storage purposes and will thus tend to relieve the car situation by releasing a number of cars which have been standing in the yards with coal. Shippers are, however, taking all the tonnage they can get on this arrangement, and it looks very much as if any more chartering on this arrangement would leave no boats to establish the rate. Reports from Buffalo are to the effect that all the boats which wintered there will secure cargoes with ease.

Pittsburg. April 8.

(From Our Special Correspondent.)

Coal.—The strike of the miners has proved to be more serious than was at first supposed. Several large industrial plants were forced to suspend operations for lack of fuel. The officials of the United Mine Workers ordered the strikers to return to work on Monday pending the action of a special convention called for to-morrow, but not more than half of the mines are in operation this week. The Monongahela River Consolidated Coal and Coke Company was more affected by the suspension than the Pittsburg Coal Company. All the flat boat coal used in the local trade has been consumed. There is still coal loaded in large coal boats which can be used here by unloading it on to flats. The scarcity has resulted in an advance in price and at some points $8 and $9 instead of the regular price of $6.25 for 100 bu. was asked. Unless a settlement of the difference is made at the convention a number of iron and steel plants will be crippled and some may be compelled to shut down. The big McKeesport plant of the National Tube Company was compelled to close on account of a lack of coal, and on Monday the Republic Iron Works which supply it with material were forced to suspend. The Boston Iron and Steel Company also shut down its mills for want of coal. The tube company owns the Bunola Mine and succeeded in getting it started yesterday, and operations at the tube works may be resumed this week. The Pittsburg Coal Company announced to-day that in order to avert any shortage of coal which may be at present threatened or at any time during the scale year it has just closed a contract for 500,000 tons of West Virginia coal, which is to be delivered any time during the present year on demand. The Pittsburgh Company has ordered that 10 cars of coal per day on this contract be sent into the Pittsburg market at once, to continue until further notice. The Pittsburg Company has the privilege of doubling the contract if necessary, so that all the local orders can be filled without trouble in case the mines now idle should remain so indefinitely.

Connellsville Coke.—The demand continues to exceed the production and prices remain firm. There is no change in the quotations of $4@$4.25 for furnace and $4.25@$4.50 for foundry coke, although it is believed that higher prices are paid in some instances for prompt delivery. The car supply was better last week and the shipments amounted to 11,890 cars, which almost equalled the heavy shipment of the second week in February. Of the 20,137 ovens in the region 19,624 were active and 513 were idle. The production for the week was 216,311 tons. The shipments were distributed as follows: To Pittsburg and river tipples, 3,415 cars; to points west of Pittsburg, 6,442 cars; to points east of Connellsville, 2,033 cars.

The Commercial Coal and Coke Company was formed here yesterday, and an application for a charter will soon be made by Lyon & McKee, attorneys for the new concern. It is said that the capital stock will be fixed at $3,000,000, and that 1,000 coke ovens will be built. The capitalists at the head of the enterprise are George B. Kaine, of Uniontown; J. R. Barnes, of Pittsburg, and a syndicate of New York financiers. The new concern has already secured 4,000 acres of valuable coking coal land in what is known as the Dunlap tract, in Fayette County. A town is to be built at the coke works. It is the intention of the new concern, when the plant is completed, to enter the market as competitors of the other big companies.

San Francisco. April 7.

(From Our Special Correspondent.)

Coal receipts at San Francisco by water in March were 133,251 tons. For the three months ending March 31st the receipts were as follows, in short tons of 2,000 lbs.:

	1899.	1900.
Eastern, Anthracite and Cumberland	13,186	2,789
Washington	172,634	163,545
Oregon	15,145	12,005
British Columbia	103,107	133,502
Australia	36,245	39,445
Japan		3,600
Great Britain	29,311	28,254
Totals	369,628	383,140

The total increase this year was 13,512 tons, or 3.7%. The statement does not include California and Rocky Mountain coal received by

rail. The imports from British Columbia were 30,395 tons larger than last year, but from other sources less. The cargo from Japan was the first in several months.

SLATE TRADE REVIEW.

New York. April 13.

Roofing slate purchases are limited by the delay in building operations, especially in the middle West. Orders that were booked by some quarrymen in the closing months of 1899 that were to have been filled in the early months of 1900 are being held subject to purchasers' advice. In these cases the price paid for the roofing slate is 25c., 30c. and even 40c. less per square than the market value to-day. Renewal orders will likely have to pay the advance.

As the Pennsylvania quarries are opened much is heard of labor troubles. In the Pen Argyl region, at some of the quarries, slaters and ordinary laborers have demanded an increase in wages and shorter hours' work. The quarrymen and mill stock people, however, claim that the price of slate does not justify an advance in wages. It is believed, though, that slaters will receive more money.

The shipments of slate from Walnutport and Slatington, Pa., in the first quarter of this and last year are compiled by us as below:

	1899.	1900.	Changes.
Roofing, sqs	31,629	25,479	D. 6,150
school slates, cases	2,899	4,402	I. 1,593
Blackboards, crates	3,286	3,333	I. 67

The falling off in the shipments of roofing slate is due partly to the decreased export trade.

In West Virginia, near Bedington, in Berkeley County, black slate quarries are to be opened by Pennsylvania people. The slate is said to occur in large quantities and equal in quality the York County, Pa., slate.

Concerning the export trade much adverse comment is heard. It is now claimed that French roofing slate is being sold in London at considerably less than the American product. Speculators in London, it is said, are among the largest buyers of American roofing slate to-day. Building operations in Great Britain are now almost at a standstill. On the other hand, supplies of Welsh roofing slate are plentiful. In fact, some of these quarrymen are understood to be shading their schedule prices, as much as 10s. per mille of 1,200 slates. Therefore it is likely that the exports of American slate to the United Kingdom will show a continued decrease as compared with 1899. Freight rates are firm.

The list of prices per square for No. 1 slate, standard brand, f. o. b. at quarries in carload lots, is given below:

Prices of Roofing Slate.

Size, inches	Monson or Br'ksville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
24 x 14	6.10	3.50	3.00	3.25	3.10	5.10	3.15	.....	.....
24 x 12	6.60	3.50	3.00	3.25	3.10	5.25	3.15	3.75	.....
22 x 12	6.60	3.50	3.25	3.50	3.25	5.25	3.15	3.75	.....
22 x 11	6.50	3.75	3.25	3.50	3.25	5.25	3.15	4.00	.....
20 x 12	6.90	3.75	.....	3.50	3.25	5.25	3.15	3.75	.....
20 x 11	6.80	.....	.....	3.75	3.50	5.25	3.15	.....	.....
20 x 10	6.80	4.50	3.50	3.75	3.50	5.35	3.15	4.25	11.00
18 x 12	6.80	3.75	....	3.50	3.25	5.25	3.15	3.50	.....
18 x 11	7.00	.....	.....	.....	.....	.....	3.15	3.75	.....
18 x 10	7.20	4.50	3.50	3.75	3.50	5.35	3.15	4.00	11.00
18 x 9	7.10	4.50	3.50	3.75	3.50	5.35	3.15	4.25	11.00
16 x 12	6.80	3.75	....	3.50	3.50	.....	2.95	3.50	.....
16 x 10	7.10	4.25	3.50	3.75	3.50	5.25	2.95	4.00	11.00
16 x 9	7.00	4.25	.....	3.75	.....	5.35	2.95	4.25	11.00
16 x 8	7.20	4.50	3.50	3.75	3.10	5.35	2.95	4.25	11.00
14 x 10	6.60	3.75	3.25	3.25	.....	5.25	2.85	3.75	11.00
14 x 9	6.50	.....	.....	.....	.....	.....	2.85	3.75	11.00
14 x 8	6.60	3.75	3.25	3.25	3.10	5.10	2.85	4.25	11.00
14 x 7	6.40	3.75	3.25	3.25	3.10	5.10	2.60	4.25	11.00
12 x 10	5.80	.....	.. .	.....	.....	.....	2.60	3.25	....
12 x 9	5.60	.....	.....	.....	.....	.....	2.60	3.25	....
12 x 8	5.50	3.50	.....	3.00	2.80	4.85	2.60	3.50	9.50
12 x 7	5.00	3.25	.....	3.00	2.80	4.85	2.50	3.50	9.50
12 x 6	4.80	3.25	.....	3.00	2.80	4.75	2.50	3.50	9.50

A square of slate is 100 sq. ft. as laid on the roof.

In Brownsville and Monson delivery quotations can be had somewhat lower than above, which is also true of other brands. No. 1 Bangor are 50c. extra when full 3-16 in. Intermediate sea green, $2.35@$2.55; purple, $3.50@$4.25; purple variegated, $2.50@$3.15; red variegated, $6@$8 per square, according to size.

IRON MARKET REVIEW.

NEW YORK, April 13, 1900.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Apr. 14. 1899 F'ces.	Tons.	Apr. 13, 1900. F'ces.	Tons.	From Jan., '99. Tons.	From Jan., '00. Tons.
An' racite & Coke.	188	242,050	260	283,350	3,455,227	4,926,626
Charcoal.	17	4,925	29	7,025	75,533	127,475
Totals..	205	246,975	289	290.375	3,530,760	5,054,111

The reports of the furnaces on April 1st show a decrease of 3,150 tons in weekly capacity, as compared with March. The reduction is due chiefly to short supplies of ore and coke in some quarters. There is very little increase shown in stocks unsold, which are still much less than one week's production. The market is still a waiting one, and all sorts of rumors are current. When traced up they seem generally to have been started by interested parties. The advantage still seems to be with sellers, and they are not making concessions in prices to any considerable extent.

In finished material the demand for structural steel continues large. There are many small contracts pending. The locomotive and car builders are taking a lot of material.

Notes of the Week.

Pig iron prices in England continue to rise. Last week Scotch pig warrants sold at $17.75@$18 per ton; Cleveland at $18.25; Bessemer pig at $19.75@$20. It is to be noted that Cleveland iron brought more than Scotch pig.

Birmingham, Ala. April 9.

(From Our Special Correspondent.)

The feature of the pig iron market in this State during the last week was the blowing in of another furnace, the Williamson, located right in the city. The furnace was leased some months ago by Perry Brothers, of Birmingham, and was repaired at once. On account of the scarcity of raw material, such as coke and ore, the blowing in of the furnace has been delayed until the past week. The capacity of the plant is about 100 tons a day. It is stated that the Messrs. Perry have several good orders on hand for the product of the furnace and that none of the iron manufactured here will be on the market for some months.

Notwithstanding rumors, there are no reductions reported in pig iron quotations and the market is just as steady and firm as it has been for some time. The domestic market is holding up, even at the high prices. The large purchasers continue to hold off, except for actual needs, expecting their action to have some effect on the market.

It is stated authoritatively that some very handsome inquiries have been received for Alabama iron from the foreign market, but the time for delivery was not sufficient for the producers here to accept. A rumor prevailed here a few days ago that an order for 100,000 tons of Alabama iron had to be refused on account of its proportions and because of the time of delivery given. This cannot be verified, however, and there is a little doubt as to its truthfulness.

During the past week the foundry of the Dimmick pipe plant at North Birmingham, near here, went into operation. President Dimmick announces that the pipe foundry will be in operation by May 15th. The steel plant at Ensley and the steel wire, rod and nail mill beside it are demanding more and more iron every week.

The following quotations are given: No. 1 foundry, $18.50; No. 2 foundry, $17.50; No. 3 foundry, $16.50; No. 4 foundry, $16; No. 1 soft, $18.50; No. 2 soft, $17.50.

Buffalo. April 11.

(Special Report of Rogers, Brown & Co.)

The only change noticeable in the foundry iron situation in this district during the week just passed is a somewhat larger inquiry for extended delivery. It is almost too early to judge whether the increase in the number of inquiries will have any material effect on the market or not, but at the same time local furnaces feel the odd lots recently offered under the market are about absorbed, and a firmer market can be looked for from now on. The bulk of the business offered, however, is to supply immediate wants, and each order has a hurry-up clause attached, which shows light stocks in foundry yards. We quote below on the cash basis, f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $23,50; No. 2, $23; Ohio strong softener, No. 1, $24; No. 2, $23.50; Jackson County silver, 8%, $30; Southern soft No. 1, $23.50; No. 2, $22.50; Lake Superior charcoal, $26; coke malleable, $24.

Chicago. April 10.

(From Our Special Correspondent.)

Pig Iron.—The buying of the week has been mainly in small lots and for quick delivery, as a rule. A few sales exceeding 1,000 tons were closed for Northern iron, but inquiry is very light for anything but small lots. Foundries in general are beginning to increase production, the machinists' strike having been declared off. Prices are firm and nothing is heard of concessions. Quotations are as follows: Lake Superior charcoal, $25.50@$26; local coke foundry No. 1, $24@$25 No. 2, $23.50@$24; No. 3, $23@$23.50; local Scotch foundry No. 1, $24.50@$25; No. 2, $23.50@$24; No. 3, $23@$23.50; Southern coke No. 1, $22.85@$23.35; No. 2, $21.85@$22.85; No. 3, $20.85@$21.35; Southern No. 1 soft, $22.85@$23.35; No. 2 soft, $21.85@$22.35; Southern silveries, $25.50@$27; Jackson County silveries, $31.50@$32.50; Ohio strong softeners, $24.50@$25; Alabama car wheel, $25@$26; malleable Bessemer, $25@$26.

Cleveland, O. April 12.

(From Our Special Correspondent.)

Iron Ore.—Everything is in readiness for the opening of navigation. Fuel is being put aboard the vessels, and by April 20th a number of the principal boats in the ore trade will be ready to start up the lakes for their first cargoes. When they will return with the initial consignment of ore is quite another matter. Some of the more hopeful ore shippers are expressing some confidence that it will be as early as May 1st, but the general consensus of opinion seems to incline to the view that the first week in the month will have elapsed before any of them reach the unloading ports on Lake Erie. At these latter every possible preparation is being made to give the ore carriers good dispatch. At a number of docks new machinery has been installed and in almost every case the methods of operation will be more economical of time than last year.

The action of the dock managers last week in fixing the charge for unloading ore at 22c. per ton has raised a storm of protest from the vesselmen. Inasmuch as the price paid to the longshoremen on the docks has been advanced from 11½ to 14c. per ton for unloading ore the vessel interests naturally expected some increase, but they scarcely anticipated that it would reach the proportions which it did. This makes the total charge for trimming and unloading at both upper and lower ports 26s. or more than a fifth of the freight tariff from the head of the lakes.

Season chartering is practically over, and the fixing of the wild or daily rate is the next point at issue. In view of the scarcity of boats and the manner in which the grain shippers are bidding for vessels, it would not be at all surprising if this rate opens at $1.30, or 5c. per ton above the season's contract rate.

Pig Iron.—The machinists' strike and the general disinclination on the part of consumers to make purchases until more definitely informed as to the price conditions, which may be expected in the future, is holding the pig iron market in check most effectually. There is buying, of course, but it is only to cover the requirements of a day or a week. The strength of the market, however, does not seem to have been impaired. We continue quotations: Bessemer, $24 in the Valley; No. 1 foundry, $23; No. 2 foundry, $22.50; gray forge, $21.50; Lake Superior charcoal, $25.50.

Scrap.—The market, with the exception of a few lines, is extremely dull. There are almost no buyers in the market, and these seem indisposed to take any material save at the most favorable prices. Nominal quotations are: Steel melting stock, $21.75; No. 1 cast, $16.50; No. 1 wrought, $19.50; iron rails, $24.50; car wheels, $23.50; turnings, $13.50; borings, $12.

Philadelphia. April 8.

(From Our Special Correspondent.)

Pig Iron.—Despite rumors to the contrary, there has been no large contracts in foundry or forge iron this week. The situation is practically as it was last week. The following quotations represent the current prices to-day, although some sales of ordinary forge iron have been made at 25c. below the price quoted; No. 1 X foundry, $23.25@$24; No. 2 X foundry, $21.75@$22.50; No. 2 plain, $20.50@$21.50; basic, $22@$22.50; Bessemer, nominal, $22.25@$22.50; low phosphorus, $27@$28; charcoal iron, $27@$29.

Billets.—Small sales of billets have been made at $35@$35.50, and there is a good deal more inquiry for stuff, but buyers want lower quotations.

Bars.—A good deal of business has been done in bars at 2c. delivered, but some are holding at 2.10c. The bar mills are everywhere running full time. The following quotations may be given as the market prices at present: Ordinary iron, 2@2.10c.; refined iron, 2.15c.; test iron, 2.30c.; steel bars, 2.40@2.50c.

Sheet Iron.—Only a moderate amount of business is being done, but there are prospects of a sharp improvement.

Merchant Steel.—Quotations of merchant steel have been shaded within the past week, but no large orders have been placed.

Pipes and Tubes.—Inquiries for pipes are in hand and prices are slightly lower. Tubes are strong and a good deal of business is coming in in a sort of retail way.

Plate Iron.—There is not much improvement excepting for boiler plate, and that only in small lots. There are said to be specifications due next week for very large quantities. The following quotations were received to-day from a leading maker: Steel plates, ¼-in. and thicker, 2.05@2.10; shell plates, 2.15@2.20; flange, 2.40@

2.45; charcoal iron plates, C. H. No. 1, 2.80; best flange, 3.30c.; firebox, 3.80c.

Structural Materials.—Inquiries are just to hand during the past 48 hours from both home and foreign sources that will result in orders for several thousand tons of material. Prices are firm.

Steel Rails.—There are several inquiries in hand, but mostly for small lots at $35, for summer and fall delivery.

Old Rails.—Old rails are $24.50.

Scrap.—Scrap is badly wanted and there is more selling. Choice railroad is $24; heavy steel scrap, $23; No. 1 yard scrap, $20; wrought turnings, $15; cast borings, $14; old car wheels, $24; iron axles, $26@$28; steel axles, $27@$28.

Pittsburg. April 11.

(From Our Special Correspondent.)

The iron and steel market remains in about the same condition as last week. There is but little doing in Bessemer pig iron and no large sales were made this week. The market is very strong at $24, Valley furnaces, and there is no indication that it will go any lower during the remainder of the year. The Shenango Furnace Company is rebuilding one of the furnaces at Sharpsville that has not been operated for at least eight years, and expects to put it in blast about July 1st. There were no new inquiries for Bessemer for the second half of the year. Foundry iron is a trifle weaker and prices are not as firm as last week. There were no sales of any consequence during the week. The steel market does not show any improvement and Bessemer billets are quiet at $33, makers' mill. Basic billets bring from $38 to $39. Structural steel continues to be the most active of finished materials and the indications point to a greater consumption than in any previous year. There are an unusual number of inquiries this week and several large orders have been placed. Prices are firm, with but little change from last week's quotations. Every mill in this district is being operated to its fullest capacity and will continue in that condition for several months, which is indicated by the number of orders on hand. The sheet market has become much stronger since the consolidation was effected. There is enough business offered to keep the mills busy for some time, but at prices that will not be accepted. The new combination starts business with but few low price contracts, as no orders have been taken for some time for extended delivery. A new list of prices is being prepared by the American Steel Sheet Company and will soon be announced. The demand for pipes and tubes is as strong as ever. The National Tube Company has been somewhat handicapped by the coal miners' strike, which was responsible for the closing of the big McKeesport plant and the Republic Iron Works on the South Side.

Pig Iron.—Sales aggregating 4,000 tons of Bessemer were made during the week for delivery before July 1st. It will come from the outside furnaces, as the product of the furnaces controlled by the association is sold up for the first half of the year. The price was $24, Valley. Most of it will be delivered in Pittsburg at $24.90. Foundry iron is not as strong as last week, but prices are unchanged. There were no sales of any consequence.

Steel.—The Bessemer billet market is quiet and only a few small sales are recorded, the price being $35. For a desirable order Bessemer billets can be had at $33. The steel plate market is stronger and the outlook is good. The demand is increasing and prices may go higher. There is but little doing in merchant steel.

Sheets.—Prices are advancing and the latest quotation for No. 28 gauge was 3.25c. The demand is strong and much higher prices are predicted. It is reported here that No. 28 will likely be advanced to 3.50c. before the end of the month.

Ferro-manganese.—There is no change in the quotation and the price remains at $125; but no large lots are being sold.

New York. April 13.

There is no especial change in the local iron market. Prices are generally firm. In foreign trade we note shipments to France of $250,000 worth of agricultural machinery and $85,000 worth of wood-working machinery. A recent shipment from Philadelphia comprised $21,480 worth of structural material, with railroad supplies including 8,000 steel rails for Japan, and 31 locomotives and tenders valued at $430,200 for Vladivostok, Siberia.

Pig Iron.—Buying is of the hand-to-mouth order still. Buyers are expected to come into the market on a larger scale after May 1st. We quote for delivery to July, Northern brands, tidewater delivery: No. 1 X foundry, $23.50@$24; No. 2, $22@$23; No. 2 plain, $20.75@$21.25; Southern brands, New York delivery: No. 1 foundry, $22.50@$23; No. 2 foundry, $21.50@$22; No. 1 soft, $22.50@$23; No. 2 soft, $21.50@$22; No. 3 foundry, $21.25@$21.50.

Spiegeleisen.—The present price for domestic is $45 per gross ton, f. o. b. furnace.

Bar Iron.—The price remains 2@2.10c. for large lots of common on dock. Refined is 2.20c.

Plates.—Prices show no change. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 2.05@2.20c.; tank, 3/16-in., 2.25c.; shell, 2.30c.; flange, 2.50c.; marine, 2.95c.; universals, 2.25c.

Steel Rails and Rail Fastenings.—Some fair-sized export inquiries are under consideration. The total foreign inquiry aggregate 75,000 tons. We quote for standard sections $35 f. o. b. Eastern mills. Smaller rails are quoted: 12-lb., $40; 16-lb., $40; 20-lb., $40; 30-lb. to 40-lb., $38; 40-lb. to standard, $36, with the usual advance for small orders. We quote angle bars, 2.30c.; fish plates, 2.30c.; spikes, 2.70c.

Structural Material.—Consumption continues good, while some very large orders will soon be placed. We quote in large lots at tidewater: Beams, 2.45c.; channels, 2.45c.; angles, 2.40c.; tees, 2.40c.

METAL MARKET.

NEW YORK, April 13,

Gold and Silver.

Gold and Silver Exports and Imports

At all United States ports in February and year.

Metal.	February.		Year.	
	1899.	1900.	1899.	1900.
GOLD.				
Exports	$ 567,962	$1,403,658	$2,323,413	$7,094.948
Imports	5,148,906	1,899,378	11,541,250	3,887,650
Excess	I. $4,580,944	I. $ 495,720	I $9,217,837	E. $3,207,298
SILVER.				
Exports	4,319.074	4.952,644	9,699,880	9,551,843
Imports	1,427,027	2,786,095	4,555,879	4,916,430
Excess	E. $2,892,047	E. $2,166,549	E. $5,144,001	E. $4,635,413

This statement includes the exports and imports at all United States ports, the figures being furnished by the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending April 12th, 1900, and for years from January 1st, 1900, 1899, 1398, 1897.

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$30,220	$39,403	$495,630	$64,075	E. $422,372
1900..	2,979.004	1,174,812	11,501,670	1,235,267	E. 12,070,595
1899..	1,572,767	4,682,512	8,532,163	853,817	E. 4,565,601
1898..	1,407,834	40,243,595	10,296,719	836,062	I. 26,331,492
1897..	1,058,911	1,101,293	11,890,943	1,383,511	E. 10,465,004

Exports of gold were to the West Indies; of silver chiefly to London. Imports of gold were from the West Indies; of silver from Central and South America.

The United States Assay Office in New York reports the total receipts of silver at 73,000 oz. for the week. Total since January 1st, 1,567,000 oz.

Average Prices of Silver per oz. Troy.

Month.	1900.		1899.		1898.	
	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.
January...	27.30	59.30	27.42	59.36	26.29	56.77
February..	27.49	59.76	27.44	59.42	25.89	56.07
March....	27.59	59.81	27.48	59.64	25.47	54.90
April.....	.....	.....	27.65	60.10	25.95	56.02
May.....	.....	.....	28.15	61.23	26.31	56.98
June.....	.....	.....	27 77	60.43	27.09	58.61
July.....	.....	.....	27.71	60 26	27.32	59.06
August...	.....	.....	27.62	60.00	27 48	59.54
September	.....	.....	27.15	58.89	28.05	60.68
October ..	.....	.....	26.70	57.98	27.90	60.42
November	.....	.....	27 02	58.67	27.93	6060
December.	.....	.....	27.21	58.99	27.45	59..42
Year.....	.....	.....	27.44	59.58	2.76	58.26

The New York prices are per fine ounce; the London quotation is per standard ounce, .925 fine.

Average Prices of Metals per lb., New York

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1399.
Jan.....	15.58	14.26	27.07	22.48	4.68	4.18	4.65	5.34
Feb.....	15.78	17.02	30.58	24.20	4.675	4.49	4.64	6.28
March...	16,29	16.35	32.90	23.82	4.675	4.37	4.60	6.31
April....	.....	17.13	.....	24.98	.....	4.31	.....	6.67
May.....	.....	17.20	.....	25.76	.....	4.44	.....	6.88
June.....	.....	16.89	.....	25.85	.....	4.43	.....	5.98
July.....	.....	17.10	.....	29.63	.....	4.52	.....	5.82
August..	.....	17.42	.....	31.53	.....	4.57	.....	5.65
Sept.....	.....	17.34	.....	32 74	.....	4.58	.....	5.50
October..	.....	16.94	.....	31.99	.....	4.575	.....	5.32
Nov.....	.....	16.49	.....	28.51	.....	4.575	.....	4.64
Dec.....	.....	15.85	.....	25.88	.....	4.64	.....	4.66
Year.....	.....	16.67	.....	25.12	.....	4.47	.....	5.75

Commencing with March 17th, the prices given in the table for copper are the averages for electrolytic copper; this is the case for both 1899 and 1900. The average price for Lake copper for the year 1899 was 17.61c. For January, 1900, the average price of Lake copper was 16.33c.; for February, 16.08c.; for March, 16.56c.

Imports and Exports of Metals.

Port.	Week, Apr. 11.		Year 1900.	
	Expts.	Impts.	Expts.	Impts.
***New York.**				
Aluminum.....long tons	4	.....	17	12
Antimony ore... " "	.....	.....	.....	841
" regulus.. " "	.....	139	.....	192
Chrome ore..... " "	.....	.....	.....	151
Copper, fine ..... " "	2,442	653	31,178	6,993
" matte.. " "	212	.....	493	.....
" ore..... " "	.....	.....	.....	640
" ash..... " "	.....	.....	.....	23
Ferro-Chrome.. " "	.....	.....	.....	10
Ferro-mangan'se " "	.....	.....	.....	140
Iron ore..... " "	.....	150	.....	7,874
" pig, bar, rod " "	.....	116	1,365	1,348
" pipe..... " "	29	.....	4,030	124
" plates, sheets " "	.....	143	284	43
" pyrites..... " "	.....	.....	.....	2,700
Lead..... " "	1,420	775	25,283	15,981
" ore.. ..... " "	.....	.....	.....	4,300
" dross ..... " "	.....	.....	.....	24
Manganese, ore. " "	.....	.....	.....	1,231
Metals, old, scrap " "	365	320	1,124	2,517
Composition... " "	78	.....	887	.....
Nails..... " "	117	.....	8,723	.....
Nickel " "	48	.....	580	55
" ore. matte " "	.....	.....	.....	2,821
§Railr'd material " "	.....	190	435	1,238
Rails, old..... " "	206	.....	206	518
Spiegeleisen..... " "	.....	150	.....	330
Steel bars, plates " "	.....	414	2,125	6 451
" rails..... " "	.....	.....	12,666	18
" wire..... " "	524	.....	4,593	.....
" not speci'd. " "	92	53	2,179	967
Tin ..... " "	.....	255	.....	7,066
" dross or ashes " "	.....	.....	3	.....
" and black plates " "	.....	367	.....	9,753
Zinc..... " "	.....	50	.....	51
" dross..... " "	22	.....	239	50
" ashes, skim " "	18	.....	429	10
" ore..... " "	.....	.....	3,540	.....
†Baltimore.				
Antimony regulus...casks	.....	.....	.....	.....
Chrome ore.....long tons	.....	.....	.....	2,930
Copper, fine..... " "	1,113	.....	15,008	1,703
" matte... " "	.....	.....	.....	.....
" pipe..... " "	.....	.....	.....	.....
Ferro-manganese " "	.....	155	.....	155
Ferro-silicon..... " "	.....	.....	.....	.....
Iron pig, bar, etc. " "	.....	630	748	9,768
" ore..... " "	.....	5,306	.....	172,125
" pyrites..... " "	.....	.....	.....	11 893
Manganese ore.. " "	.....	1,550	.....	67,997
Metals, old & Rails " "	133	.....	384	.....
Nails " "	30	.....	651	.....
Pipe, iron & steel " "	.....	.....	1,709	.....
Spiegeleisen... " "	.....	30	.....	109
Steel, bars, pl'es.. " "	191	.....	657	419
" wire ..... " "	.....	.....	448	53
" rails..... " "	8,128	.....	35,521	.....
not specified.. " "	.....	.....	.....	.....
Tin..... " "	.....	.....	.....	67
" and blackplates " "	.....	.....	.....	1,121
" other..... " "	.....	.....	.....	.....
Zinc..... " "	.....	.....	.....	.....
" dross, skim. " "	.....	.....	.....	.....
" oxide..... " "	.....	.....	.....	.....
***Philadelphia.**				
Antimony .....long tons	.....	.....	.....	5
Chrome ore..... " "	.....	.....	.....	.....
Copper, fine..... " "	.....	.....	737	.....
" ore..... " "	.....	.....	.....	6,872
" old..... " "	.....	.....	.....	.....
Ferro-manganese " "	.....	.....	.....	.....
Iron, pig..... " "	.....	.....	.....	.....
" ore..... " "	.....	.....	.....	2,704
" pyrites..... " "	.....	.....	.....	87,455
Manganese ore.. " "	.....	.....	.....	.....
Steel sheets..... " "	.....	.....	.....	24,334
Spiegeleisen..... " "	.....	.....	.....	3,500
Tin..... " "	.....	3	.....	93
" and black plates " "	.....	.....	.....	1,367
Zinc dust ..... " "	.....	.....	.....	5
" ore..... " "	1,500	.....	1,500	.....

Total United States.§§

Articles.	Feb., 1900.		Year, 1900.	
	Expts.	Impts.	Expts.	Impts.
Antimony.....long tons	.....	411	.....	497
" ore.... " "	6	.....	.....	348
Copper fine..... " "	14,815	2,911	27.704	7.224
" ore & matte " "	705	1,148	1,080	3.270
Iron, pig & bar.. " "	9,559	9,071	19,554	15,948
" ore..... " "	.....	91,306	.....	181,021
Iron& steel plates " "	2,215	2,226	4,203	3,397
Iron & steel rails " "	18,315	.....	34,521	287
" " wire " "	5,314	122	11,606	259
Lead, pigs, bars & old ..... " "	9	1	39	12
Lead in ore, etc. " "	10,133	8,598	14,860	12,886
Manganese ore and oxide..... " "	.....	20,106	.....	55,362
Nickel " &matte " "	167	.....	298	.....
Nails, cut..... " "	517	.....	1,352	.....
" wire ..... " "	4,279	.....	8,474	.....
Quicksilver..... " "	79	.....	107	.....
Steel, billets, rods, etc..... " "	2,370	2,458	6,461	7,050
Tin..... " "	20	1,854	20	4,825
" &black plates " "	5	3,741	21	10.130
Zinc..... " "	1,267	19	2,363	243
" ore .... " "	2,008	.....	4,267	.....

*New York Metal Exchange returns. †By our Special Correspondent. §Not specified. ‖ Week ending Mar. 31st. §§ Monthly returns, Treasury Department. ‖ Week April 5.

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1¼c. a lb. on lead in ores; 2½c. per lb. on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c. per lb. Spelter or zinc, 1½c. per lb in pigs and bars, 2c. on sheets, etc. Copper, tin and platinum are free of duty.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars	$ .47¾	$ 49
Peruvian soles and Chilean pesos	.44	.46
Victoria sovereigns	4.86	4.88
Twenty francs	3.88	3.90
Twenty marks	4.75	4.88
Spanish 25 pesetas	4.78	4.82

Financial Notes of the Week.

The general business situation is quiet and unchanged. The speculative markets are also quiet, with no special changes to note. Money rates are somewhat higher.

The silver market has been dull and slightly lower on lack of orders in London. India has been practically the only buyer. The market is likely to remain dull but steady till after Easter holidays. Mexican dollars are dull at 27¼d.

The statement of the United States Treasury on Wednesday, April 11th, shows balances in excess of outstanding certificates as below, comparison being made with the statement of the corresponding day last week:

	April 4.	April 11.	Changes.
Gold	$98,498,251	$93,504,428	D $4,993,823
Silver	8,69?,718	8,672 976	D 17,742
Legal tenders	9,510,162	9,179,968	D 330,194
Treas. notes, etc.	636,761	698,399	I 61,638
Totals	$117,335,892	$112,055,771	D $5,280,121

Treasury deposits with national banks amounted to $111,355,771, a decrease of $859,460 during the week.

The statement of the New York banks—including the 63 banks represented in the Clearing House—for the week ending April 7th, gives the following totals, comparison being made with the corresponding weeks in 1899 and 1898:

	1898.	1899.	1900.
Loans and discounts	$595,851,200	$778,709,400	$755,566,200
Deposits	682,236,800	894,964,700	822,495,600
Circulation	13,865,500	13,928,900	20,574,500
Reserve:			
Specie	141,555,200	187,152,500	151,755,200
Legal tenders	64,723,800	51,607,500	61,772,500
Total reserve	$206,280,000	$238,760,000	$212,528,700
Legal requirements	170,559,200	223,741,175	205,623,950
Balance, surplus	$35,720,800	$15,018,825	$7,904,800

Changes for the week, this year, were increases of $12,954,300 in loans and discounts, $14,679,000 in deposits, $437,900 in circulation, and $2,482,400 in specie; decreases of $744,000 in legal tenders, and $1,931,350 in surplus reserve.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding date last year:

Banks.	1899. Gold.	1899. Silver.	1900. Gold.	1900. Silver.
N.Y. Ass'd.	$187,152,500	.....	$151,756,200	.....
England	150,453,980	.....	168,608,255	.....
France	363,636,765	$240,798,489	388,590,915	$227,146,580
Germany	137,170,000	70,665,000	122,705,000	63,210,000
Spain	58,210,000	58,405,000	68,435,000	77,975,000
Aus.-Hun.	149 455 000	52,210,000	188,085,000	48,235,000
Neth'l'ds	19,985,000	34,335,000	24,360 000	29,925,000
Belgium	15,265,000	7,630,000	14,280,000	7,140,000
Italy	76,13?,000	11,750,000	77,130,000	8,005,000
Russia	492,685,000	23,760,000	412,255,000	33,945,000

The returns of the Associated Banks of New York are of date April 7th, and the others are of date of April 5th, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the year up to March 29th, 1900, are reported by Messrs. Pixley & Abell's circular as follows:

	1899.	1900.	Changes.
India	£1,114,000	£1,224,362	I.£110,362
China	289,230	127,295	D. 161,935
The Straits	24,907	46,150	I. 21,243
Totals	£1,428,137	£1,397,807	D .£ 30,330

Arrivals for the week, this year, were £242,000 in bar silver from New York, and £13,000 from Chile; total, £255,000. Shipments were £172,000 in bar silver to Bombay, India.

New securities offered in London for the first quarter of the year amounted to £51,587,00, against £39,416,000 last year. The amount for last quarter, however, includes British war loans amounting to £31,500,000. Of the new securities only £394,700 were of mining companies.

Indian exchange has been lower, and the average rate for Council bills in London was 15.97d. per rupee. The Indian Government has stopped buying silver, having obtained all it needed.

Other Metals.

Daily Prices of Metals in New York.

April.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London. Pence.	Copper. Lake. cts. ℔ lb.	Copper. Electrolytic ℔ lb.	Copper. London. £ ℔ ton	Tin. cts. ℔ lb.	Lead cts. ℔ lb.	Spelter. N.Y. cts. ℔ lb.	Spelter. St. L. cts. ℔ lb.
7	4.86½	59⅝	27½	16.95	16.75	.....	30¾	4.67½	4.75	4.55
9	4.86¼	59⅛	27⅞	16.95	16.75	79	30¼	4.67½	4.75	4.60
10	4.87	58½	27⅝	16.95	16.75	79	30¾	4.67½	4.80	4.60
11	4.87¼	59⅛	27⅝	16.95	16.80	79½	31	4.67½	4.80	4.60
12	4.87¼	59⅛	27⅝	16.95	16.80	79	31½	4.67½	4.80	4.60
13	4.87½	59⅛	....	16.95	16 80	.....	31¾	4.67½	4.80	1.60

London quotations are per long ton (2,240 lbs.) standard copper, which is now the equivalent of the former g. m. b's. The New York quotations for electrolytic copper are for cakes, ingots or wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

Copper.—The market is very strong. Considerable business is reported and demand, especially for early shipment, is very heavy. We hear that refiners are in arrears with shipments, which condition they attribute to a falling off in supplies of raw material. Inquiry from abroad continues excellent and the prices for refined copper are approaching more closely to those of the speculative brands. We quote Lake copper at 16.90@16.95c.; electrolytic in cakes wirebars and ingots at 16.75@16.80c.; in cathodes at 16.50@16.60c.; casting copper at 16⅝c.

The London market, which closed last week at £78 15s. for spot, £77 2s. 6d. for three months, opened at £79 for spot, £77 10s. for three months, and remained steady at about these figures, at which it closed on Thursday. The Exchange in London is closed until next Tuesday.

Refined and manufactured sorts we quote: English tough, £80 10s.@£81 10s.; best selected, £81 10s.@£82 10s.; strong sheets, £88 10s.@£89; India sheets, £85 10s.; yellow metal, 7¼@7⅜d.

Tin.—A fair business has been done this week at advancing prices. Arrivals continue to be scant and shipments are made direct from steamers so that the stocks in warehouse are not augmented. Consumption continues excellent and at the close we quote spot tin 31¾c., May delivery at 31⅛.

The London market, which closed last week at £136 for spot, £135 for three months, opened at £135 for spot, £134 for three months. On Tuesday it was £136 5s. for spot, £135 for three months, and on Wednesday an advance of £3 was scored, the market being £139 2s. 6d. for spot, £137 17s. 6d. for three months, at which prices it closed on Thursday.

The production of Banka tin for 1899 is estimated at 11,351 long tons, of 2,240 lbs., against 9,620 tons in the preceding year; an increase of 1,731 tons, or 18%. The production last year is the largest ever reported.

Lead.—The market continues quiet but steady. A fair business is doing at the last prices, namely, 4.65@4.70c. New York, 4.55@4.57½c. St. Louis.

The London market is strong and business has been done at higher prices. Spanish lead is quoted at £16 16s. 3d., English lead 2s. 6d. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead presents no novelty. Missouri and chemical brands are selling in a retail way at 4.57½c., and argentiferous brands at 4.65c.

Spelter.—The market is active and we learn of large transactions for both early and distant deliveries. The rumors of a large export sale, mentioned in our last report, appear to be correct, and it remains to be seen whether the quantities still available for home consumption will be sufficient. Higher prices have been paid and at the close we quote the market 4.60@4.65c. St. Louis, 4.80@4.85c. New York.

The foreign market is also higher, good ordinaries being quoted at £22 7s. 6d.@£22 10s.; specials at £22 12s. 6d.

Antimony.—A good business has been done in this article at the last prices, namely, 10½@11c. for Cookson's; 9¾@9⅞c. for Hallett's; 9½@9⅝c. for U. S. Star.

Nickel.—The price of this article is now 45@50c. according to size of order. This is an increase of 5c. over recent quotations.

Platinum.—Consumption has increased and prices are higher. For ingot platinum in large quantities $18.20 per Troy oz. is quoted in New York.

Chemical ware (crucibles and dishes), best hammered metal, from store in large quantities, is worth 70½c. per gram.

Quicksilver.—Quotations remain unchanged at $51 per flask for large lots, New York. For small orders the prices are $52.50@$54. The London price continues at £9 12s. 6d., with the same figure named for second hands.

San Francisco quotations are $51.50@$52 per flask for local deliveries, and $46.50@$47 for export.

Minor Metals and Alloys.—Wholesale prices, f. o. b. works, are as below:

	Per lb.
Aluminum.	
No. 1, 99% ingots	33@37c.
No. 2, 90% ingots	31@34c.
Rolled sheets	42c. up
Alum.-bronze	20@23c.
Nickel-alum	33@39c.
Bismuth	$1.70
Chromium (over 99%)	1.10
Copper red oxide	60c.
Ferro-Molyb'um (50%)	$1.05
Ferro-Titanium (10%)	90c.
Ferro Titanium (20%)	$1.00
Ferro-tungsten (37%)	40c.
Magnesium	$2.75@$3
Manganese (over 99%)	$1.05
Mangan'e Cop (20% Mn)	32c.
Mangan's Cop (30% Mn)	38c.
Molybdenum (Best)	$1.45.
Phosphorus	40@50c.
Tungsten (Best)	$1.00

Variations in price depend chiefly on the size of the order.

LATE NEWS.

(From Our Special Correspondent.)

Lawrence County—South Dakota.

Gladiator Gold Mining Company.—This company, has been organized in Deadwood. The officers are: President, D. H. Fillmore, Dowes, Ia.; vice-president, W. J. Thornby, Deadwood; secretary, H. C. Giles, Deadwood; treasurer, C. H. Crabtree, Des Moines, Ia. The company has secured 72 acres joining Homestake lands on the west and near the Grantz Mine. Several shafts and tunnels have been driven. A cyanide plant is contemplated.

Ruby Gold Mining Company.—The charter has been received in Deadwood by the incorporators, James Conzett, Norman T. Mason and O. U. Pryce. The company proposes to develop several claims in Ruby Gulch, 7 miles southwest of Deadwood, next to Strawberry Gulch.

Labrador.—Men are at work on this group in Squaw Creek District. The group is bonded to the William A. Otis Company, of Colorado Springs, Colo.

Kalgoorlie District—Western Australia.

(From Our Special Correspondent.)

Lake View Consols.—H. C. Callahan has resigned after acting as manager nearly 5 years, the resignation to take effect at once. Mr. Callahan left the mine last September for a trip to London, leaving his brother in charge. He returned February 28th and immediately resigned. The mine is in splendid condition. The rich shoots have been found at the 4th and 5th levels. The sulphide treatment is not a grand success yet; the Chilean mills are being replaced by No. 8 Ball mills. Two of the 4 furnaces are treating about 40 tons a day each and making an extraction of 88% on 2-oz. ore.

Associated Mines.—W. A. Irwin, manager since 1895, has tendered his resignation, to take effect at once. Mr. Landau, the chairman of directors, is at present on the mine with 2 mining engineers and a metallurgist from England, who are investigating the mine. A local impression is that the mine is much overrated and the shareholders dislike being undeceived. Two of the 4 Ropp furnaces are treating about 65 tons a day. The remainder of the plant should soon be at work; also the new 60-drill compressor made by Walker, of Wigan, England.

Kalgurli.—There has been a little friction between the manager and the consulting engineer, and the manager tendered his resignation, which was immediately accepted. The sulphide plant, after 18 months' construction, is about ready, and the mine should increase the gold output decidedly during 1900. The veins are very wide and reported rich.

By Telegraph.

(From Our Special Correspondent.)

Leadville, Colo., April 12.—The Leadville & Red Cliff Power, Water and Light Company was incorporated to-day with a capital stock of $650,000, and will erect a power plant near Red Cliff on the Eagle River, a distance of 30 miles from Leadville, to generate power for the mines and smelters of this camp. The plans and propositions have all been carefully made, and the new plant, which will generate 5,000 H. P., will enable the operation of many properties now idle. The directors for the first year include Charles Bottcher, John F. Champion, S. W. Mudd, W. B. Page and Charles Cavender.

By Telegraph.

(From Our Special Correspondent.)

Birmingham, Ala., April 12th.—The Alabama Pig Iron Committee reports that pig iron shipments from the Southern field were heavy in March. Shipments from Alabama and Tennessee were 130,000 tons, an increase over last year of 11,000 tons. Shipments from the Birmingham District alone were 83,000 tons. Export iron shipments were 8,000 tons. Export pipe, 425 tons. Pig iron shipments from Alabama and Tennessee for the first quarter of the year were 365,000 tons, an increase of 18,000 tons; shipments from the Birmingham District alone were 225,000 tons. The Alabama Car Service Association reports 43,000 cars handled in March, an increase of 14,000 cars.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 470.)

New York. April 13.

Heavy Chemicals.—Quiet. Domestic high test alkali and caustic soda are nearly sold up for 1900 delivery by makers. Further contracts for 1901 and 1902 were taken at 85@90c. per 100 lbs. f. o. b. works for alkali and $1.85@$1.90 f. o. b. works for caustic soda. Sal and bicarb. soda show an improved demand. Bleaching powder, prime Liverpool, sold ex-dock at $1.90 per 100 lbs. Chlorate of potash is also easier. A small export business is being done.

We quote, per 100 lbs., as below:

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, 58%.	80@85	95@1.00	$.92½
" 48%.	85@90	1.00@1.05	1.02½@1.05
Caustic Soda, high test....	$1.90@$2	$2.37½@2.50	$2.50@2.60
powd. 60%	.....	3.00@3.25	.....
70@74%.	.....	3.25@3.50	.....
98%.	.....	3 50@4.00	3.75@4.00
Sal Soda 70@80.	.....	.....	67½@72½
" conc.	1.45@1.75	.....	1.60@1.65
Bicarb. Soda..	1.25@1.37½	.....	1.75@2.00
" " extra	3.25@3.50	.....	.....
Bleach Pdr., Eng. prime..	.....	.....	1.90@2.00
other br'nds.	.....	.....	1.70@1.85
Chi. Pot. cryst	.....	9.50@9.75	10.00@10.25
" powd.	.....	9.75@10.00	10.25@10.50

Acids.—Sulphuric is improving in demand and deliveries on contract are larger than last month. Blue vitriol is higher in sympathy with the copper market, and owing to an increased export dmand. The other acids are in good request. Prices, excepting for blue vitriol, are unchanged.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, No.8 in lbs.	$1.62½	Nitric, 36°	$3.87½
Blue Vitriol,	5.12½@5.25	Nitric, 38°	4.12½
Aqua Fortis, 36°	3.62½	Nitric, 40°	4.37½
Aqua Fortis, 38°	3 87½	Nitric, 42°	4.75
Aqua Fortis, 40°	4.12½	Oxalic	5.87½@6.00
Aqua Fortis, 42°	4.50	Sulphuric, 66°	1.20
Muriatic, 18°.	1.20	Sulphuric,60°	1.05
Muriatic, 20°.	1.35	" bulk 50° ton	14.00
Muriatic, 22°	1.50	Sulphurous, 100% SO_2anhydrous.	8.00@10.00

Brimstone.—Sales of best unmixed seconds are reported at $21.25@$21.50 per ton, while shipments are held at $20.75@$21. Best thirds are about $2 less per ton.

Pyrites.—Imports are 3,339 metric tons from Spain. We quote: Mineral City, Va., lump ore, $4.50 per long ton (basis 42%), and fines, $4.20. Charlemont, Mass., lump, $5.50, and fines, $5. Pilley's Island, lump, nominally, $6.50, and fines, $4.50 per long ton, delivered in New York. Spanish pyrites, 13@15c. per unit, according to percentage of sulphur contents, delivered ex ship New York and other Atlantic ports. Spanish pyrites contain from 46% to 51% of sulphur; American, 42% to 44%, and Pilley's Island, N. F., 50%.

Fertilizing Chemicals.—A moderate demand exists for the leading ammoniates. With the improvement in the price of cotton the consumption of fertilizers in the South promises to increase. The fall trade in the East is inquiring for material, but as yet no contracts of consequence have been booked, owing to the low price of wheat. It is believed that fish scrap and garbage products will be mostly used by Eastern manufacturers. Western manipulators are credited with buying ammoniates for this and next month's delivery at full prices. The American Fisheries Company is to be reorganized. The United States Menhaden Oil and Guano Company, with a $200,000 capital stock, has been incorporated in New Jersey to do an agricultural chemical business. The attorneys of this company are the same as those of the American Fisheries Company, but it is denied that the two concerns have connections with each other.

Sulphate of ammonia, foreign gas liquor, is worth $3.02½ per 100 lbs. for shipment and $3.05@$3.07½ for prompt delivery, while domestic is unchanged at $3 f. o. b. Boston. High grade Western blood rules at $2.20@$2.25 per unit, f. o. b. Chicago. Other quotations are: High grade Western tankage, $2 and 10 per unit, f. o. b. Chicago; concentrated tankage, $1.95@$1.97½ per unit, f. o. b. Chicago; domestic steam ground bone, $20@$21.50 per ton; Calcutta bone meal, $23.25@$25.25; regular bone black, $20@$21, and dissolved, $15@$16.

The present prices for potash salts, at New York, Boston and Philadelphia, per 100 lbs., are as follows: Muriate of potash, 80@85%, basis 80%, $1.83; muriate of potash, minimum 95%, basis 80%, $1.86; sulphate of potash, minimum 90%, basis 90%, $2.05½; sulphate of potash, minimum 96%, basis 90%, $2.08½; manure salt, minimum 20% potash, 64@66c.; double manure salt, 48@53%, basis 48%, $1.06; Kainit, 12.4% potash, $9.05@$9.30 per long ton; and sylvinit, 38½@39½c. per unit. For Norfolk prices add 2c. per 100 lbs. to the concentrated salts, except double manure salts, to which add 1c., and for kainit add 30c. per ton, and sylvinit 1c. per unit. For Charleston, Savannah, Wilmington, N. C., and New Orleans add 1½c. per 100 lbs. to the concentrated salts, except 20% manure salt, to which add 1c.; and to kainit add 20c. per ton, and sylvinit, 1c. per unit. These prices are for not less than 500 tons of bulk salts or 50 tons of concentrated salts, and are based upon river shipments from the mines to seaport. For shipments by rail add 5c. per 100 lbs.

Nitrate of Soda.—Very firm. Spot nitrate of soda is quoted $2.15 per 100 lbs.; arrivals in May, $1.90, and future shipments, $1.75. Freights are high, and will not ease off until the South African war is settled. Consumption of nitrate of soda in America is increasing; hence prices are expected to hold firm throughout the year. Expected arrivals in May aggregate 193,000 bags; in June, 50,000 bags, and July, 54,000 bags; total for Imports at New York are 2,063 bags from Liverpool, and 1,924 bags from Chile, the latter per steamer "Advance." The shipments from the west coast of South America to Europe in March are reported at 74,000 long tons, making a total of 240,000 tons for the first quarter of this year, against 281,000 tons in 1899. Loadings for Europe on April 1st amounted to 34,000 tons, against 78,000 tons last year.

Saltpeter.—The imports into the United States in March are reported at 7,055 bags, against 9,823 bags last year. There were on the way to this country by mail advices to February 22d, 4,365 bags, and by cable to March 31st, 7,800 bags. Stock in New York, March 31st, amounted to 7,400 bags, against 3,000 bags last year. The visible supply April 1st amounts to 19,565 bags, against 16,869 bags at the same time last year. The deliveries in New York and Boston in the first quarter of 1900 amount to 18,078 bags, showing an increase of 5,445 bags as compared with 1899. Prices current are $3.20 per 100 lbs. for crude for shipment and $3.62½ for spot. Refined rules at $4.50@$5.

Phosphates.—An agreement among the miners in Tennessee is understood to have been formulated at a recent meeting in Mt. Pleasant. An organization known as the Tennessee Phosphate Association was then formed and officers elected as follows: President, G. W. Killebrew; vice-president, H. D. Ruhm; secretary and treasurer, W. V. Wilson. Members of the association include the Bluegrass, American, Columbine, Howard, International, Jackson, Wilson and Carpenter phosphate companies, and the Petrified Bone Milling Company. This association will gather statistics of the industry and regulate the market. Reports are current that a company with $125,000 capital is to be formed to purchase the output of the small phosphate mines not already under control of the larger concerns. Consumption of Tennessee phosphates is increasing. The shipments from Pensacola, Fla., in March amounted to 9,211 tons, making a total of 33,316 tons for the first quarter of this year, against 21,461 tons in the same time in 1899, showing an increase of 11,855 tons. In Florida high grade rock miners are busy filling contract orders, and in the pebble region much work is also being done. The shipments of high grade rock from Savannah in March amounted to 12,987 tons, making a total of 32,375 tons for the first quarter of this year, against 19,471 tons in 1899, showing an increase of 12,904 tons. South Carolina phosphates are in fair request.

Charters noted are 1,884 tons and 1,107 tons from Tampa to Baltimore at 2.25, 893 tons to Elizabethport at private terms, and 983 tons to Philadelphia at $2.25.

Ocean freight rates from Florida ports are about as follows: To Baltic ports, $5.04@$5.16 per ton; Continental, $4.76@$4.88, and Mediterranean ports, $4.89@$5.01, while from Savannah, Ga., to the United Kingdom, $4.25@$4.50 is asked. We quote as follows:

Phosphates.	Per Ton F. o. b. Am Shipping Port.	C. i. f. Un'd Kingdom or No Sea Ports.	
		Unit.	Long ton.
Fla. hard rock (77@80%)	$8.00@8.50	8¼@8⅝d	$12.87@13.06
Fla. land pebble (68@73%)	4 35	7d	9.80
FlaPeace River (58@63%)	3.00@3 50	6¾@7d	8.10 @ 8.40
Tenn. rock (78@80%)	3.25@3 75	7⅛@7¼d	11.25@11.45
Tenn rock (70@75%	2.25@3 00	.....	.....
So. Car. rock, undried.	3 75@4.00	.....	.....
So. Car. rock, dried....	4 50@4.75	.....	.....
So. Car. rock, ground....	6.00	.....	.....
Algerian, rock....(63@70%	.....	7d	9.30
Algerian, rock....(58@63%	.....	6¾d	8.18

Concentrated phosphates, 13@15%, average P_2O_5, 62½c. per unit ($9 per ton). Tennessee acid phosphates, high grade, $12 per short ton, and low grade, $10 f. o. b. Nashville.

Liverpool. April 4.

(Special Report of Joseph P. Brunner & Co.)

The market for heavy chemicals is quiet as regards new business, but makers continue busy on contract deliveries, and with no accumulation of stocks, quotations are firm generally.

Soda ash is in moderate compass, and values are unchanged, varying according to export market. We quote spot range for tierces about as follows: Leblanc ash, 48%, £4 15s.@£5; 58%, £5@£5 5s. per ton net cash. Ammonia ash, 48%, £4 5s.@£4 10s.; 58%, £4 10s.@£4 15s. per ton net cash. Bags, 5s. per ton under prices for tierces. Soda crystals are in steady request and firm at £3 2s. 6d. per ton, less 5% for barrels, or 7d. less for bags; with special terms for a few favored markets. Caustic soda is scarce, and there is a difficulty in placing orders for prompt delivery. We quote spot range as follows: 60%, £9 5s.; 70%, £10 5s.; 74%, £10 15s.; 76%, £11@£11 5s. per ton net cash.

Bleaching powder is rather dull, although export figures are nominally unchanged at £7@£7 5s. per ton net cash for hardwood packages.

Chlorate of potash is rather slow of sale at 4¼@4½d. per lb. net cash, makers holding for the higher figure.

Bicarb. soda is in moderate demand, while prices vary according to destination, ranging from £5 5s. to £6 15s. per ton, less 2½% for the finest quality in 1 cwt. kegs, with usual allowances for large packages.

Sulphate of ammonia is flat and prices are easy at about £12@£12 2s. 6d. per ton, less 2½% for good gray 24@25% in double bags f. o. b. here.

Nitrate of soda is selling at £9@£9 2s. 6d. per ton, less 2½% for double bags f. o. b. here, as to quality and quantity.

MINING STOCKS.

Complete quotations will be found on pages 457 and 458 of mining stocks listed and dealt in at:

Boston.	Philadelphia.	London.
Colo. Springs.	Spokane.	Mexico.
Denver.	Salt Lake.	Paris.
New York.	San Francisco.	Toronto.

New York. April 13.

The coppers have softened in price. Amalgamated sold down from $95¾ to $93 bid on Wednesday, and Anaconda from $54½ to $51½ bid on the same day. Tennessee sold at $15@$16, and British Columbia at $13@$12½. Some trading was done in Arizona Lead around $15.

Trading in the other stocks was comparatively light. Standard Consolidated of California sold at $3.45@$3.50, Quicksilver preferred at $9, and Brunswick at 29c. Alice of Montana made a sale at 65@60c., and Horn Silver of Utah at $1.15.

In Cripple Creek a discussion is now on between the mines and the smelters and railroads, over rates of treatment and transportation. What are considered the largest mines, it is reported, are contemplating a reduction in their production to conteract the high rates charged by the smelters and railroads. Therefore trading in these shares is rather light at present. Elkton brought $1.20, Jack Pot 61c., Work 33c., Mollie Gibson 24c., Cripple Creek Consolidated 14½c., Alamo 17@16½c., and Pharmacist 14c. A sale of Argentum-Juniata was made at 21c. In the other Colorado stocks Iron Silver sold at 68@69c., and Little Chief at 21c.

Of the Comstocks sales were reported at Sierra Nevada at 55c., Yellow Jacket at 30c., Ophir at 87c., and Utah at 14@15c.

American Smelting and Refining shares were lower in price, the common selling down to $38½ from $40¼, and the preferred at $89 from $90.

Standard Oil sold at $550 on the curb on April 9th, which is the highest price on record. Later fairly large trading was done around $547.

New listings on the New York Stock Exchange were Pleasant Valley Coal Company, $1,069,000 5% gold sinking fund first mortgage coupon bonds of 1928 for $1,000 each, and Tennessee Coal, Iron and Railroad Company $2,530,200 additional common stock, making the total amount listed $22,530,200.

An auction sale is reported of $76,000 Grand River Coal and Coke Company first mortgage 6% bonds due 1919 at 103%.

Miscellaneous dividends include Pennsylvania Salt Manufacturing Company, 6%, payable April 16th; Pennsylvania Steel Company, 1¾% quarterly on preferred stock, April 16th; Susquehanna Iron and Steel Company, 3% quarterly, April 16th; Union Carbide Company, 1% quarterly, paid April 5th; Virginia-Carolina Chemical Company, 2% quarterly on preferred stock April 15th; American Steel Hoop Company, 1¾% quarterly on preferred stock, April 30th; American Tin Plate Company, 1¾% quarterly on preferred, April 30th; American Car and Foundry Company, 1¾% quarterly on preferred, May 1st.

Boston. April 11.

(From Our Special Correspondent.)

The stock market here continues entirely a traders' market, and this week we have had one of those reactions which are always looked for on such a market. Outside of some buying to cover shorts it has been very dull. The "spring boom" seems to have been indefinitely postponed.

The coppers were generally lower and in smaller demand. Of the speculative stocks Butte & Boston was quoted at $78; Isle Royale, $28; Copper Range, $24; Old Dominion, $23; Arcadian, $22½; Centennial, $21½.

Outside the coppers, United States Mining sold at $10½; Cochiti at $11½; Gold Dredging at $3½@$4. United States Oil was quoted at $21½. There were sales of Dominion Coal at $44; New England Gas and Coke at $17½@$18.

Franklin has been especially heavy since the publication of the annual report. It is generally believed that a new issue of stock will be made to pay off the floating debt.

Boston & Montana stock has been taken off the regular list at the Exchange. Hereafter it will be quoted only among the unlisted stocks.

Portland Ore. April 6.

(From an Occasional Correspondent.

We are to have a mining exchange like many of the other leading cities. It will be called the Oregon Mining Stock Exchange, with a $10,000 capitalization. Not only will mining stocks be dealt in, but also railroad, water and industrial shares. The Portland Chamber of Commerce has indorsed this enterprise. The incorporators of the exchange are J. E. Haseltine, J. A. Arment, L. G. Clark, James T. Moyland, D. Solis Cohen, H. H. McCarthy, I. G. Davidson and F. J. Hard. A thorough investigation is to be made for all properties before they are listed, and practically the same rules existing on the Colorado Springs Exchange will govern our board.

Salt Lake City. April 7.

(From Our Special Correspondent.)

Trading in Utah mining shares for the past week was fairly active, from the view point of recent business, total sales reported being 151,000 shares, which sold for $68,089. The dividend payers continue in best demand, particularly with outside customers. April starts more favorably than any recent month. April will make a new dividend record, the total thus far announced being $352,000, as follows: Centennial-Eureka, the first quarterly dividend, $100,000, paid on the 5th; Mammoth, $40,000, paid to-day; Silver King, $75,000, payable the 10th; Swansea, $5,000, payable 10th; Daly-West, $37,500, payable 16th; Ontario, the regular quarterly, $44,000, payable on the 20th; Mercur, regular quarterly, $50,000, payable on the 22d.

Daisy remains a lively hopper around the vanishing point. Daly-West held firm between $19 and $20, with good business. The March earnings topped $75,000, and there is renewed talk of increasing the dividend rate. Eagle & Blue Bell was active at slightly lower figures. Four Aces made a spurt, the demand being caused by an unlooked-for good ore shipment. Beyond question the week's sensation was supplied by Grand Central. It opened down at $3.75, but the report, which this time seems to be true, that ore in quantity is cut on 900 level caused quick recovery in the middle of the week, sending the shares above $6, closing to-day strong at $6.32 bid, $6.55 asked. Lower Mammoth is the feature to-day, nearly all the brokers having orders to fill. It started at 50, sold up to 56 and closed strong at 55½ bid, 55¾ asked. What is behind this move cannot be ascertained. Mammoth sold up to $2.27, and allowing for the 10c. dividend paid to-day it holds this advance.

San Francisco. April 7.

(From Our Special Correspondent.)

The stock market continues to show only the usual small dealings. Upon the whole business has been better and prices firmer than last week.

Sales are noted of Consolidated California & Virginia at $1.55@$1.60; Caledonia, 96c.@$1; Ophir, 85c.; Best & Belcher, 30c.; Mexican, 23c. Outside the Comstocks, Standard Consolidated was quoted at $3.05.

The sales on regular call at the San Francisco Stock Exchange for the year to date compare as follows:

	1899.	1900.
January, shares	121,955	164,400
February	350,860	112,000
March	292 625	252,730
Total	745,440	529,130

This shows quite a reduction in dealings this year.

Business on the Oil Exchange has been fair, and sales are increasing. Barker Ranch was quoted to-day at $1.15; Anaconda at 50c.

London. March 3.

The mining market continues very flat. The future of the gold mines continues to cause much anxiety and the damage already done to Natal collieries affords ample reason for expecting a general wrecking of Johannesburg. The death of Joubert is also lamented, as he was the one Boer of position who would be a champion of the preservation of private property. He was an upholder of the modern idea of warfare, as contrasted with the older style of marauding expeditions. Another cause for discontent and depression in the market is the award of the Swiss arbitration tribunal in the matter of the Delagoa Railway. The amount awarded for the confiscation of the property 10 years ago is not one-third of what it should have been. Besides, the tribunal took 10 years to settle a matter which ought to have taken a month or two at the most, which proceedings bring arbitration into ridicule and are not at all appreciated in the City.

In absence of any inducement to deal in South Africans or West Australians, rather more attention has been turned to copper this week. The large dividend paid by Rio Tinto for 1899 has caused much buying of the shares by people who believe that the price of copper will continue high, and the £5 ordinary share now stands at £58 to £60. The Tharsis Company will pay a dividend for 1899 at the rate of 37½%, as compared with 27½% in the previous year, which was itself a record breaker. This company has always written off a liberal amount every year for depreciation and in 1899 the sum of £50,000 was devoted to this purpose.

Last week I mentioned the collapse of the Panuco Copper Company. I am now informed that the directors have decided that the company should go into liquidation. There is something like £100,000 in cash on hand that was intended to be used as working capital, and the other asset is the property itself. It will be really a very great scandal if the assets of the company are distributed among shareholders pro rata, for the venders in that case will not only retain their cash consideration of £200,000, but will also receive one-third of the assets of the company. It seems incredible that such a proposition should be made. The only right way of dealing with the business would be to rescind the original contract and for the venders to return the whole of their purchase consideration, both cash and shares. No reasonable person could ask the vendors to stand the cost of the promotion, nor would there be any desire that they should be out of pocket by the transaction. But for them to retain the purchase consideration and to recieve part of the assets on the liquidation of the company is really too much for human patience, and I sincerely hope that an explicit statement that they will forego all profits and receipts will be made at the earliest opportunity.

Several new mining companies have been introduced to the public this week. One is the Birrim Valley Gold Mining and Dredging Company, Limited, which has been formed to work some placers and conduct dredging operations in the country behind Gold Coast Colony, West Africa. From the reports supplied and from independent information, there seems to be no doubt that there is plenty of gold to be won in that district, but whether Europeans can stand the climate and make the enterprise a paying one is quite another thing. The directors and promoters are not leading people of influence, and I don't think they will obtain much support from the public.

Paris. April 1.

(From Our Special Correspondent.)

The market for the African gold stocks has been rather quiet this week, and the fluctuations have been small. In a few cases the quotations have recovered somewhat. There has been less selling of stocks here. In fact, London reports some buying back of shares sold there, though this report is not well substantiated.

The copper stocks still attract much attention. The Rio Tinto dividend, which brings the total payment on the common stock for 1899 up to 80%, has, of course, been used to put the price up still further. Much nonsense continues to be written and believed here about the price of copper and the influence of the Amalgamated Company in holding back shipments; but the statistics show how little truth there is in all this.

The Government will shortly issue the bonds for part of the loan of 60,000,000 fr. for Madagascar. This loan is to be guaranteed by the Colonial Government like the Indo-China loan which was raised last year. The proceeds of the issue are to be used in building a railroad from Tananarivo to Tamatave. This road is stated to be a military as well as a commercial necessity. It is believed that some commercial traffic can be developed, and it is announced that the Government will adopt a system in fixing rates on the new road under which goods carried to the port for shipment will pay only 25c. a ton, while the rate on goods imported will be 2.50 fr. The reason given is that merchandise imported can stand the charge, as it will meet with no competition, while rates on the exports must be kept low to enable them to compete with the productions of other countries in the markets of the world.

The preliminary statement of steel and iron production in France for the full year gives the following figures, in metric tons:

	1898.	1899.	Increase.
Pig iron made	2,534,427	2,567,380	32,361
Wrought iron, all forms	801,593	842,755	41,212
Steel ingots	1,441,633	1,529,181	87,548
Finished steel	1,138,639	1,253,701	115,062

The Steel production includes both converter and open-hearth steel.

The Comite des Houillieres reports the total coal mined in 1899 at 32,933,788 metric tons, against 32,356,104 tons in 1898, an increase of 577,684 tons only.

The special correspondence from the Transvaal which appears in the "Engineering and Mining Journal," is attracting much attention. This evidently authentic news direct from Johannesburg is the first statement given with authority which we have had and is looked upon as very important.

Azote.

ASSESSMENTS.

Name of Company.	Location.	No	Delinq.	Sale.	Amt.
Acorn	Utah	2	Apr. 21	May 12	.03½
Alaska	Utah	..	Apr. 25	May 14	.02
Badger	Ore..	1	Apr. 2	May 2	.10
Bunker Hill	Utah	4	Apr. 27	May 15	.00½
Chollar	Nev.	51	Apr. 25	May 16	.15
Con., Cal. and Va.	Nev..	15	Apr. 10	May 1	.20
Confidence	Nev..	34	Apr. 18	May 9	.20
Crown Point	Nev..	78	Mar. 29	Apr. 19	.05
Dewey Gravel	Cal..	..	Apr. 24	.....	10.00
Eureka Swansea Ext.	Utah	1	Apr. 16	May 15	.00½
Kutonia	Utah	1	May 4	May 24	.01
Excelsior Drift	Cal..	..	Apr. 30	.....	.03
Four Aces	Utah	4	Apr. 26	May 16	.02
Goleta Con	Cal..	1	Apr. 30	May 28	.06
Gould & Curry	Nev..	89	Apr. 10	May 2	.15
Hale & Norcross	Nev.	...	Apr. 9	.....	.10
Horseshoe Bar Con	Cal..	...	Apr. 14	.....	.02
Little Chief	Utah	3	Mar. 31	Apr. 18	.01
Lucky Bill	Utah	...	Apr. 30	May 21	.02
Maxfield	Utah	7	Apr. 30	May 28	.09
Mayflower	Utah	...	May 1	May 20	.00½
Mayflower Gravel	Cal..	..	Apr. 21	.....	.07½
Meteor	Utah	...	Apr. 14	May 17	.00½
Mexican	Nev..	63	Apr. 11	May 2	.15
National Con	Cal.	11	May 1	.....	.05
North Rapidan	Nev..	...	Apr. 24	.....	04
Old Home, Con	Cal..	...	Apr. 21	.....	01
Omaha	Utah	1	Apr. 2	Apr. 17	.02
Pacific	Utah	2	Apr. 9	Apr. 21	.00½
Peabody	Cal..	..	Apr. 26	.....	10
Potosi	Nev..	55	Apr. 18	May 9	.15
R. G. W	Utah	4	Apr. 4	Apr 19	.00½
Sailor Con	Cal..	3	Apr. 14	May 5	.01
Savage	Nev..	100	May 8	May 28	.10
Silver Park	Utah	2	May 7	May 26	.02
Skagit Cumb'la'd Coal	Was.	7	Apr. 17	May 15	.01½
Snow Flake	Utah	..	Mar. 1	Mar. 31	.05
Success	Utah	8	Mar. 17	Apr. 14	.01
Sunbeam Con	Utah	25	Apr. 17	May 4	.10
Tetro	Utah	12	Apr. 28	May 19	01
Union Con	Nev.	59	Apr. 10	Apr. 30	.15
Yankee Con	Utah	2	Mar 31	Apr. 17	.01
Yellow Jacket	Nev..	3	Apr. 10	May 15	.15

DIVIDENDS.

Name of Company.	Latest Dividend.			Total to date.
	Date	Per share.	Total.	
†Amalgam'ted Copper	Apr. 30	$2.00	$1,500,000	$4,500,000
Anaconda Copper	Apr. 30	2.00	2,400,000	14,550,000
*Boston Duenweg Zn.	Apr. 1	.10	4,000	48,000
*Central Lead, Mo	Apr. 16	.50	5.000	1 2,000
*Cordell Zinc, Mo	Apr. 16	.05	3.000	9,000
*Daly-West, Utah	Apr. 16	.25	37,500	367,500
Dixie, Utah	Apr. 1	.01	5 000	10,000
*Doe Run Lead	Apr 16	.50	2,500	100,000
*Empire State, Idaho	Apr. 15	.30	29,554	436,254
Favorite, Colo	Apr. 20	.04	48,000	48,000
†Federal Steel, pf.	Apr. 20	1.75	1,597,830	6,391,320
Mammoth, Utah	Apr. 7	.10	40,000	1,690,000
†Mercur, Utah	Apr. 22	.25	50,000	1,466,000
*Modoc, Colo	Apr. 16	.01	5,000	165,300
Montana Coal & Coke	Apr. 20	.30	60,000	60,000
Mountain Copper	Apr. 10	2.64	660,000	1,833,750
N. J. & Mo. Zn	Apr. 3	.10	5,000	5,000
*N. Y. & Hond. Rosa'o	Apr. 14	.10	15,000	1,220,000
†Ontario, Utah	Apr 20	.30	45,000	3,662,500
*Smuggler	Apr. 16	.03	30,000	1 330,000
†United Z. L. Mo	Apr. 15	.50	20,000	80,000
†Vindicator, Colo	Apr. 25	.05	53,250	411,000

* Monthly † Quarterly.

ANNUAL MEETINGS.

Name of Co.	Locat'n.	Date.	Place of Meeting.
Alamo	Utah	May 21.	Salt Lake City, Utah.
Alaska	Utah	May 4.	Salt Lake City, Utah.
Anaconda	Mont.	May 19.	Anaconda, Mont.
Anchoria Leland	Colo	May 15.	Colo. Springs, Colo.
Boston & Colo. Sm	Colo	May 10.	Argo, Colo.
Crown Point	Nev	June 7.	San Francisco, Cal.
Church	Cal.	May 7.	San Francisco, Cal.
Franklin	Mich	Apr. 18.	19 Congr's St., Boston
Goleta	Cal.	May 19	San Francisco, Cal.
Homestake	Utah	May 7.	Salt Lake City, Utah.
Iron Silver	Colo	May 1	30 Broad St., N. Y.
Justice	Nev.	May 7.	San Francisco, Cal.
Nugget	Colo	May 5.	Colo. Springs, Colo.
Playa de Oro	Ecuado'	May 1.	Versailles, Ky.
Santa Ysabel	Cal.	Apr. 19.	Denver, Colo.
Tamarack	Mich	May 3.	Boston, Mass.
Tasmania Cop'er	Colo	Apr. 30.	Cheyenne, Wyo.

STOCK QUOTATIONS.

NEW YORK.

Name of Company	Location.	Par val.	Apr. 6. H.	Apr. 6. L.	Apr. 7. H.	Apr. 7. L.	Apr. 9. H.	Apr. 9. L.	Apr. 10. H.	Apr. 10. L.	Apr. 11. H.	Apr. 11. L.	Apr. 12. H.	Apr. 12. L.	Sales
Alamo	Colo..	1	16½						17		16½				2,000
Amalgamated C	Mont.	100	96.00	95.50	97.00	96.50	96 00	95.00	96 00	95.50	94.25	93.50	94.00	93.50	1,400
Anaconda, c	"	25	51.88	51.50	53 25	52.63	54 50	52.50	54.25	53.50	53.13	51.75	53.00	....	14,100
Anaconda Gold	Colo..	5	.33						35						
Argentum-Jun..	"	2	.19						.21						1,000
Ariz. Lead			15.00	14.63	15.50	15.00	15.50	15.00	15.50	15 00	15.50	15.00	14.88	14.50	1,300
Breece	Colo..	25	1.35												
Brit.Col.Copper	B. C..	10	12.75	12.50	12.75	12.50	12.88	12.63	13.00	12.75	13 00	12.75	12.25	11 75	2,600
Brunswick	Cal..	1	.26						.29		.29				600
Chollar	Nev..	5	.21						.10						
Chrysolite	Colo..	50			.07										300
Con. Cal. & Va.	Nev ..	2½	1 70		1.80										
Crescent	Colo..	10			.15				1.60						700
Cr & Cr. Creek	"	1	1.12½												
Cripple Cr. Con.	"	1	14½				14¾								2,000
Crown Point	Nev ..	3	.21												500
Daly	Utah..	20	1.3.												
Deadw'd Terra.	S. Dak	25	.75						.80						200
Elkton	Colo ..	1	1 20						1.30		1.30				400
Father de Smet.	S. Dak.	10			.10										50
Garfield Con	Colo..	1	.20												
Golden Age	"	1					.04				03½				4,000
Golden Fleece	"	1	.80		.85				.90						300
Homestake	S. Dak	100	50.00						50.00						
Horn Silver	Utah..	25	1.15						1.18						200
Iron Silver	Colo.	20	.66						.68		.69				400
Isabella	"	1	1.05						1.10						
Jack Pot	"	1	.59						.61		.61				400
King & Pemb	Ont..	10	.37												
Lady Helen	Colo..	1			79 00	96.00	79 00	76 00	77 00	75 00	77.00	75 00			
Little Chief	"	1	.19				21		.19						200
Little Tiger	Cal..	1	16.00	15.00	16.00	15.00	16 00	15.00	16.00	15.00	16 00	15.00			
Mexican	Nev..	8	.22						.22						
Mollie Gibson	Colo..	5	.25				.24		.24						800
Mt. Rosa	Colo..	1	.70												
Ontario	Utah.	10	8.25						8.25						
Ophir	Colo .	1	.8.				.87		.75						400
Pharmacist	"	1	13½				.14		.13½		.14				2,500
Phoenix	Aris..	1	.10				.11		.11						800
Plymouth	Colo..	1	.12						.12						
Portland	"	1	2.30						2 80						
Potosi	Nev..	3	.14												
Quicksilver	Cal..	100	1 75						1 75						
do. pref	" ..	100	8.00						9.00						100
Savage	Nev..	2	.10						.09						
Sierra Nevada	"	3	.50		.58				.55						300
Small Hopes	Colo	20	1 10						1.10						500
Specimen	Colo.	1	.09												1,000
Standard Con	Cal	10	3.15		3 35		3 50	3.45	3.25						400
Tenn Copper	Tenn.	10	17 50	16 50	17.50	16.50	17.50	16.50	17.50	16.50	17.50	16.50	16 50	15.50	600
Union	Colo..						.85								400
Union Con	Nev	2½	.14												
Utah	Utah.	10	.10				.15	.14							1,000
Work	Colo	1	.33		.34		.33								500
Yellow Jacket	Nev..	8	.15						.9						20

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.	.....	$100	40¼	39⅞	40	39½	40¼	39¾	40	39¼	39⅜	38¼	38⅜	....	8,152
" " " pf	.....	100	90	89¼	89½		89½		90	89	89		89	....	3,289
Am.S & W Con	.....	100	56¾	56	56½	56¾	56¾	54⅜	54½	51¾	52⅜	50¼	50⅜	....	180,72
" " pf'r n	.....	100	9.	90¼	91	90¾	89½		89¾	89½	89	87	85	....	21,764
Am. Tin Plate.	.....	100	33⅜	2⅝			33	32⅜	32⅝	32½	32½	31½	30¾	....	4,010
" " " pf	.....	100	84		84		84½		84				84	....	2,218
Col. Fuel & I	Colo..	100	49½	48¼	49	48¼	48¾	47¼	49¾	48¾	48¾	47¾	48¼	....	14,705
Col. & H.C.& I.	"	100	19½	18⅞	19¼				18¾	18½	18¾				9.0
Federal Steel	.....	100	50	49	49¾	49	49	46¾	46¼	49	46¾	47¼			88,13
" " pf	.....	100	73¼	73⅛	73¾		73¾	73	73	73½	73¼	72¾	72	....	6,015
Fleming'n C.&C	W.Va.	100	23	22	25	22	25	22	23½		24	23	26	24	1,500
Int'l Pump	"	100	22	2.¼	23	21	22	21	21	21	22	21	22	21¾	
National Lead	N. Y	100	24⅜	24			25¾		25¼		23¾	23	23¼		1,695
" " pf		100	105	104⅜									103¾		430
National Salt	.....	100	49	48	49	48	49	48	48	45	42	41	46	45	
" " pf	.....	100	79¼	78	79¾	78	79	77	79	77	79¼	77	77	....	
Nat'l Tube	.....	100	54	53¾	53¾	53¾	54	53¾	54	53¾	53¾	53¼	53¾	....	4,468
Press. St. Car	Pa ..	100							53¼				51	....	1,195
" " pf.	"	100	88¾		88¾				94¼		83¼		82	....	895
Republic I. & S.	"	100	22	21¾	22	21⅝	21¼	21	21	20¾	20⅝	21¼	20¾	....	5,725
" " pf	"	100	66	65¾	66		65¾	64½	66		64¼	63¼	63¾	....	1,886
Sloss-Shef	"	100	31	29	30	28¾	30	28	30	28	30	28	29	27	
" " pf	Ala...	100	69	68¾	69	67¾	69	68	69	68	69	68	69	66	
Stan.Oil of N.J.	"	100	543	540	543	540	545	540	547	543	547	543	548	545	351
Tenn.C.,L.&R.	"	100	96¾	95¾	96¾	95¾	96	94¾	95¾	92	94	91¾	92¾	....	15,455
" " pf	"	100													
U.S.Cast I.P.&F	.....	100	7¾	7	7¾	7	7¾	7	7¾	7	7¾	6¾	6	5¼	
" " pf	"	100	48	47	48	47	48	46	48	46	47	46	49¾	45	
Va.Coal & C	W.Va.	100	22	19	22	19	22	19	22	19	22	19			

Ex-dividend. Total sales, 405,142.

PHILADELPHIA, PA.*

Name of Company.	L'cation.	Par Val.	Apr. 5. H.	Apr. 5. L.	Apr. 6. H.	Apr. 6. L.	Apr. 7. H.	Apr. 7. L.	Apr. 9. H.	Apr. 9. L.	Apr. 10. H.	Apr. 10. L.	Apr. 11. H.	Apr. 11. L.	Sales
Am. Alkali	.....	.....	2.80	....	2.80	....	2 50	....	2.68	2.50	2.50	....	2 50	....	1,410
" " pf	.....	.....													
Bethlehem Irn	Pa.	.....	58.00	57.50	...	....	58.00	....			58 00	....	58 00	....	90
Bethlehem S'l	"	$50							17 75	....	17.75	17.50	17.75	....	560
Cambria Iron	"	50	43.75	43.50	....	....	43.75	....	43.75	43.25	44 00	43.75	44.00	....	914
Cambria Steel	"	50	21.50	21.38	21.50	21 25	21.38	....	21 13	21.00	21.00	20 75	20.75	20.50	2,283
Susq. I. & S.	"	10	4 50	4.38					4.00						234
United Gas I.	"	50	121¾	12	121¾	120¾	121¾	121	121	120¼	120¾	119	119¾	118¾	1,924

Total shares sold, 7,415. * Reported by Townsend, Whelen & Co., 309 Walnut St., Philadelphia.

SAN FRANCISCO, CAL.

Name of Company.	Location.	Par value.	Apr. 5.	Apr. 6.	Apr. 7.	Apr. 9.	Apr. 10.	Apr. 11.
Belcher	Nev.	$3.00	.31	.32	.31	.30	.30	.32
Best & Belcher	"	3.00	.31	.28	.26	.26	.26	.27
Caledonia	"	3.00	1.05	1 05	1.00	1.05	1.05	1.15
Challenge Con	"	3.00	.21	.20	.20	.20	.20	.20
Chollar	"	3.00	.16	.15	.14	.14	.14	.13
Confidence	"	3.00	.73	.76	.75	.72	.70	.70
Con. California & Virginia	"	2.50	1.60	1.75	1.70	1 70	1.70	1.70
Crown Point	"	3.00	.19	.20	.18	.18	.18	.20
Gould & Curry	"	3.00	.16	.26	.28	.27	.27	.28
Hale & Norcross	"	3.00	.22	.32	.32	.32	.33	.32
Justice	"	2.00	.05	.05	.05	.05	.05	.05
Mexican	"	3.00	.23	.22	.33	.35	.35	.35
Occidental Con	"	3.00	.12	.12	.12	.13	.15	.12
Ophir	"	3.00	.86	.84	.83	.80	.78	.78
Potosi	"	3.00	.17	.17	.15	.14	.14	.14
Savage	"	2.50	.12	.13	.13	.11	.11	.11
Sierra Nevada	"	3.00	.55	.54	.53	.52	.54	.53
Standard Con	Cal.	10.00	3.05	3.05	3.05	3.05	3 10	3.20
Union Con	Nev.	2.50	.19	.32	.32	.32	.33	.32
Utah Con	"	1.00	.12	.12	.12	.11	.12	.12
Yellow Jacket	"	3.00	.28	.30	.29	.28	.28	.31

CALIFORNIA OIL STOCKS.*

Name of Company.	No. of shares.	Par Val.	Mar. 19. H.	Mar. 19. L.	Mar. 20. H.	Mar. 20. L.	Mar. 21. H.	Mar. 21. L.	Mar. 22. H.	Mar. 22. L.	Mar. 23. H.	Mar. 23. L.	Mar. 24. H.	Mar. 24. L.	Sales
Anaconda	100,000	$5.00			.50	.45	.55		55		55				1,150
Blue Goose	5,000	100	20.00	16.00	20 00	17 00	20.00	17.50	20.00	17.75	20 00	18 50			2,
Burlington	100,000	1.00													
Carbon	100,000	1 00	.75	.68	.75	.69	.75	.65	.80	.70	.80	.70			1,140
Cholame Valy	2,000	100	3.00	3.00	5.00	3 00	5.00	3.40	7.0	3.00	5.00	3 00			
Home	100,000	1 00	3 70	3.65	3 70	3.60	3.70	3.65	3.70	3.60	3 65	3.60			1,285
National	100,000	5.00	6 25		6.25		6 25		6 25		6.25				
Petroleum	100,000	1.00	.40	.30	.40		.40	.30	.50	.30	.50				50
San Luis	100,000	10 00													
Shamrock	100,000	5 00	1.25		1.25	1.00	1.00		.90	.80	.80	.70			150
Yukon	100,000	2 50			1.50	1.35	1.30	1.10	1.25	1.15	1.25	1.20			550

* California and Producers Oil Exchanges. Total sales, 4,345 shares.

BOSTON, MASS.†

Name of Company.	Par val.	No. of shares.	Apr. 5. H.	Apr. 5. L.	Apr. 6. H.	Apr. 6. L.	Apr. 7. H.	Apr. 7. L.	Apr. 9. H.	Apr. 9. L.	Apr. 10 H.	Apr. 10 L.	Apr. 11. H.	Apr. 11. L.	Sales
Adven'n'e,Cons	$25	100,000	6.00	5 50	6 00						6.00		5.75		6.00		330
Aetna, Cons. g.	5	100,000			3.00										6.00		100
Alloues	25	80,000	3.00	2.50							2.50				2.50		305
Amal. Cop	100	750,000	97.00	96.00	97.00	96.00	96.50				97.00	96.50	96 25		95.50	94.00	1,384
Am. Z. L. & S.	25	60,000	16.00	15.50			18 00										155
Anaconda	25	1,200,000															
Arcadian, c	25	150,000	26.00	24.00	25.50	24.13	25.00	25.00	25 00	23.25	25 00	23.50	25.75	22.25	5,245
Arnold, c	25	60,000	8.25	7.88	7.62	6 50	9.50	7.75	9.25	8.50	8.50		8.00	7.75	10,476
Ashbed	25	400,000			.50		.50		.70	.50	.85	.65	.70		4,351
Atlantic, c	25	40,000	28 50	28.00	29 00	28.00	28.00		27.50	17.00	26.25				700
Baltic, c	25	100,000	25 00	23.63	24 00	23.50	24.00		24.00	23.00	24 00	23.25	23.25		1,925
Bingham, c. g	10	190,000	12 75	12.25									11.50		338
Bonanza, Dev.	10	300,000	1.13								1 18				60
Boston&C.C	2	200,000				12¾									200
Bos.&Mon.Tr.	25	150,000	320	317	325	315	327	325	318		324	322	322	320	618
British Col		200,000	13.00	12 38	13 00	12.25	13.13	14.75	13 00	12.75	13 00	12.50	12.75	12.50	3,935
Butte & Bost., c	10	200,000	84.00	80.00	83.50	82 00	84.50		83.00	81.50	82.00	80.00	80.00	77 00	3,899
Cal. & Hecla, c	25	100,000	755	753	760	755			760	750	750		750		91
Catalpa		100,000					.20		.20						
Centennial, c	10	300,000	24 50	22.50	23.50	23.25	24.25	25.25	24.25	22.75			24.00	21.00	4,305
Cent'l-Eureka		90,000	27.50	27 00	27.50	27 00	27.00		26.75	25.50	26.00	25.50	25.75	25.50	520
Central Oil	25	100,000			18.50						18.00				100
Cochiti, g	25	60,050			12.50		13 00	12 50	12 50	12.13	12.50		12.50	11.50	1,290
Cont.Z.Mg&Sm	25	157,000	4.25												200
Copper Range	10	110,000	27 00		27 00	26 00	27.00	26 75	25.00				24.50	24.00	300
Crescent	10	100,000					.20		.20						1,200
Dominion Coal		100,000	48 00		49.00	46.50	47.25	47.00	46 50	46.00	46.00	43 50	44.00		1,681
do. pref		100,000					115¾								30
Elm River	100	20,000	6 25	6.00	6.38	6 50	6.25	6.25	6.25	5.75	6.00				1,236
Federal Steel	12	100,000	49 50	48 25	49.75	49 00	49.75	49.00	49 13	46.88	47.50	46 63	48.75	47.00	3,886
do. pref	100	464,843	74.00	73 25	74.00	73.00	74 00	73.50	73.50		73.25		73.00	72.50	157
Franklin, c	100	532,610	17.63	16.00	17.50	17.00	18.00	17.50	17 50	16.00	17.00	16.00	15.75		2,862
Gold Coin	25	100,000							.10						100
Humboldt	25	40,000											1.00		650
I. Royal Con. c	25	100,000	33.00	28.50	30.50		31.25	30.50	31.00	30.50	29.50		28.75	27 25	2,675
Mass. Con	25	100,000	9.00	8.50	9.50	9.00	9 25	9.00	8 75	8.50	8.88	8 50	8.50		1,390
Mayflower	25	100,000	4.75	4.38	4.50	4.00	4.25	4.00	4.00		3 80		4.00	3.75	1,330
Melones	10	167,877	2.75								2.50				400
Merced, g	15	100,000													
Michigan	25	100,000	6.00		6 50	6.00			6.50		6.50				525
Mohawk, c	25	100,000	20.00	19.00	18.50	18.00	19 50	18.00	18.50	18.00	19 50	17.75	17.50		1,672
Montana C. & C	5	100,000	9.00		9.00		9.00				8.50				1,465
N.A.Gold Dre'g	10	100,000	3.75	3.50	3.75	3.50			4.00		4.00	3.50	3.75	3.50	675
Old Colony, c	25	100,000	5.00		5.00		5.00	4 75					4.50	3 75	760
Old Dominion, c	25	150,000	24.50	22 25	22.75	21.75	24.00	23.00	23 25	22.63	23.25	23.00	22.75	21.75	8,101
Osceola, c	25	93,000	73.00	70.00	71.00		72 25	70.50	72 00	70.00	71.00	70.00	70.00	68.50	1,438
*Parrot, s c	10	229,880	51.25	48.00	49.25	48.50	49.00		49 00	48.00	49 00	47.50	47.75	46.50	3,703
Quincy, c	25	100,000	140		140	139			139		139		138		120
Rhode Island	25	100,000	5.50	4.75	5.25						6 00		5.25	5.00	365
Santa Fe, g. c	10	250,000	6 75	6.63	7.13	6.63					7.00	6.75	6.88	6.75	1,365
San. Ysabel, g	5	130,000	1 25		1 25	1.00					1 00		1 00		370
Tamarack, c	25	60,000	195	193	198						194¾	194	193¾		84
Tecumseh	25	80,000	4.50		5.00										70
Tri Mountain	25	100,000	10.50	9.75	10 00	9.50			9.75	9.50	9.50	9.25			1,125
Union C. L	25	80,000													2,000
United States			12.50	11.00	12.38	11 00	12 25	12 00	11 75	11.50			11.00	10.50	377
U. S. Oil	25	100,000	22.00		21.50	21.0	21.50		21.50	21.00	21 00		21 50	21.00	
Utah Cons,g. c	5	300,000	35.75	33 50	35.00	34.00	35.00	34.13	34.00	33.50	34.25	33.50	33.50	33.00	5,210
Victoria	25	100,000			3.63	3.50	4.00	3 50							485
Washington	25	40,000	1.13		1.13										450
White Knob	100	80,000			22 00										100
Winona, c	25	100,000	6 00	5.13	5 88	5.00	5 25	5 00	5 00				4 75	4 50	2,450
Wolverine, c	25	60,000	43.50	42.00	43.00		42.50	42.00	43 00	41.63	41.25	40.75	40.63	40.50	1,018
Wyandotte	25	100,000	2 25	2.00			2.50	2 25			2.50		2 13		1,10

† Official quotations Boston Stock Exchange. Total sales, 39,825. * Ex dividend.

SALT LAKE CITY, UATH. Apr. 7.

Stocks.	Shares.	Par val.	Bid.	Asked.	Stocks.	Shares.	Par val.	Bid.	Asked
Ajax	300,000	$10	$0.47½	$0.54	Horn Silver	400,000	$25	$1.10	$1.80
Alice	400,000	25	.40	.70	Joe Bowers	700,000	1	.04½	.05¾
Buckeye	500,000	1	.02	.05	Joe Bowers Ext.	450,000	¼	.02¼	.03
Bullion-Beck & Ch.	100,000	10	2.75	3 50	Little Pittsburg	400,000	5		.03
Centennial Eurka	200,000	25	26.00	28 00	Lower Mammoth	150,000	1	.55¾	.55¾
Chloride Point	500,000	1	.08¼	.10	Mammoth	400,000	5	2 15	2.17½
Daisy	500,000	3	.00¾	.00⅝	May Day	400,000	¾	1.06	1.07½
Dalton	500,000	5		.00¾	Mercur	200,000	25	5 40	5.80
Dalton & Lark	2,500,000	1	.03¾	.09	Northern Light	400,000	5	.08	.03¾
Daly	250,000	20	1.00	1.55	Ontario	150,000	100	8.25	9.00
Daly West	150,000	30	19.15	19.30	Richmond-An	500,000	1	.15¾	.16
Dexter	200,000	5	1.00¾	1.05	Sacramento	1,000,000	5	.17¾	.19
Eagle			.00¾	.00¾	Silver King	150,000	20	50 50	
Eagle & Blue Bell	250,000	1	85	1.05	Star Consolidat'd	500,000	1	.03¾	.14
Four Aces	250,000	1	.04¾	.04	Sunbeam	250,000	1	.01	.02
Galena	100,000	10	.15		Sunshine	250,000	10	.18	
Geyser-Marion	300,000	5	.04	.08	Swansea	100,000	5	3 63	3.76
Golden Eagle	400,000	1	.02	.03	South Swansea	150,000	1	1.25	1.28
Grand Central	250,000	1	6 32	6.55	Utah	100,000	1	.45	
Homestake	400,000	1		.08	Valeo	200,000	10	.51	.65

TORONTO, ONT.

Name of Company.	Par val.	Apr. 2. B.	Apr. 2. A.	Apr. 3. B.	Apr. 3. A.	Apr. 4. B.	Apr. 4. A.	Apr. 5. B.	Apr. 5. A.	Apr. 6. B.	Apr. 6. A.	Apr. 7. B.	Apr. 7. A	Sales
Ontario:														
Alice A	$1			.03¾	.06	.03¾	.06	.03¾	.06	.03¾	.06			
Bullion	1			.50		.50		.50						
Golden Star	1			.16	.16½	.15½	.16½	.15½	.16¼	.15¾	.16¼			13,500
Ham Reef	1			.13	.14	.12½	.13¾	.12¾	.13¾	.12¾	.13¾			8,000
Olive	1			.25	.35	.25	.34	.25	.34	.24	.34			1,000
British Col.:														
Athsbaska	1			.27½	.32	.27	.30	.24	.30	.25	.30			3,500
Big Three	1			.07¾	.08¾	.07¾	.08¾	.07¾	.08¾	.07¾	.09			
CaribooM'K	1			.88	.80	.69	.75	.69	.80	.70	.80			
Crow's N. C.	25			34 50	38 00	$5.00	37.50	34.50	40.00	35.00	40.00			
Dardanelles	1			.02	.04	.02	.04	.02	.04	.02	.04			1,000
Deer Trail	1			.08¾	.10¾	.08	.08¾	.08¾	.10¾	.09¾	.10¾			6,350
Fairview	1			.04	.05	.04	.06	.03¾	.05	.03¾	.05			500
Jim Blaine	1			.17		.17		.16		.17				
Knob Hill	1			.60		.58¾	.63	.65	.75	.75	.80			
Lone Pine fi	1			.14	.18	.14	.18	.14	.17¾	.14	.17			10,000
Minnehaha	1			.03¾	.04	.01¾	.04	.02¾	.03¾	.02¾	.04¾			
Mont.Cristo	1			.03	.04	.03	.04¾	.03	.04¾	.03	.04¾			500
Mont.&Lon	0.24			.28¾	.30	.30	.32	.30	.32	.30	.33			
Noble Five	1			.05	.08	.05	.08	.03	.08	.03	.09			
North Star	1			1.20	1.25	1.30	1.25	1.20	1.25	1.23	1.25			1,000
Princess M.	1			.05	.07	.05¾	.07	.05¾	.07	.03¾	.07			13,750
Rambler				.27½	.30	.26¾	.29	.26	.29	.25	.30			5,000
Rathmullen	1			.03¾	.04¾	.03¾	.04¾	.03¼	.04¾	.03¾	.04¾			6,500
Republic	1			1 04	1.07	1 04	1.07	1.04	1.08	1.03¾	1.07			1,000
Van Anda	1			.02¾	.04	.03	.04	.02	.04	.02¾	.03¾			5,000
Virtue	1			1.03	1 10	1.09¾	1.22	1 17	1.22	1.08	1 23			4,005
War Eagle	1			1.38	1.45	1.38	1.43¾	1.45	1 53	1.45	1.47½			
Waterloo	0.10			.04	.07	04	05	.04	.05	.04	07			
White Bear	1			01¾	02¾	.01¾	.02¼	.01¾	.02¾	01¾	.02¾			500
Winnipeg	1			.13	.17	.13	.16	.13	.16	12	14			
Develop Co.														
B.C.G.Field	1			.03	.04	.03	.04	.03	.04	03	04			5,500
Can. G. F.S.	0 1			.07	.08	.07	.08	.07	.08	07	.08			
Gold Hills	1			04	.04¾	.03¾	.04¾	.03¾	.04¾	.03¾	04¾			5,000

SPOKANE, WASH.*

Name of Company.	Par val.	Week, Apr 7 B.	Week, Apr 7 A.	Sales.	Name of Company.	Par val.	Week, Apr. 7. B.	Week, Apr. 7. A.	Sales
Butte & Boston		.03	.03¾		Morning Glory	0.10	.03¾	.04	7,000
Conjecture					Morrison		.02¾	.04	
Crystal		04¼	.06		Mountain Lion		.3	.95	
Deer Trail No. 2	$1	.09¾	10¾	1,000	Princess Maude	0.10	.04¾	.03¾	1,000
Evening Star	1	.07	.08		Quilp	1

STOCK QUOTATIONS.

COLORADO SPRINGS, COLO.‡

Name of Company.	Par val	Mar. 31. B.	Mar. 31. A.	Apr. 2 B.	Apr. 2 A.	Apr 3. B.	Apr 3. A.	Apr 4. B.	Apr 4. A.	Apr 5. B.	Apr 5. A.	Apr. 6. B.	Apr. 6. A.	Sales.
Acacia	$1	.32	.30	.30¼	.30¾	.31¼	.29½	.33½	.27	.29	.28¼	.25¼	.26¼	26,000
Acme	1	.15	.16	.15	.15¼	.15¼	.16	.....	.16	.....	.16	.16¼	.....	6,100
Am. Con	1	.05¾	.06	.05¾	.06	.05¾	.06	.05¾	.06	.05¾	.06	.05¾	.06	2 000
Anaconda	1	.37½	.40	.35	.....	.35½	.36	.35	.39	.35	.40	.....	.....	2,610
Anchor	1	.03¾	.03¼	.....	.03½	.03¼	.03½	.....	.03¼	.03¼	.03¼	.03¼	.....	5,000
AnchorialL	1	8 ½	.....	.80	.....	.80	.....	.75	.....	.75	.....	.75	.....	.....
Ant lops	1	.03	.03¼	.03	.03¼	.03	.03¼	.....	.....	.03½	.03¾	.03¼	.....	19,000
Aola	1	.05¾	.05¼	.05¾	.06¼	.....	.05¾	.05¾	.....	.05¾	.05½	.05.96	.....	11,000
Arcadian	1	.....	.07	.....	.07	.....	.07	.....	.06	.....	.04½	.....	.....	1,000
Arg'entum J	1	.20¾	.....	21¼	.....	.21¼	.22	.18	.....	.20¾	.20	.20¼	.....	10,500
Banner	1	.04	.04¾	.....	.04¼	.04¼	.04½	.....	.04¾	.04¾	.04¼	.....	.....	.....
Battle Mt.C.	1	.3 ¾	.3	.31	.3.3¾	.30	.31	.29¾	.30¾	.29½	.31	.27¾	.27¼	12,800
Ben Hur	1	.07¾	.07¼	.06¼	.07¾	.....	.07¼	.....	.07¼	.....	.07¼	.06¾	.07¼	2,000
Black Bell	1	.....	.18	.12¼	.18	.....	.....	.....	.18	.....	.14	.....	.12¼	1,000
Blue Bell	1	.12¾	.18	.12¾	.18¼	.12¾	.13¾	.12	.12¾	.12¾	.14	.11¾	.12¾	3,887
Boh Lee	1	.04	.5	.4¾	.04¾	.04¾	.05	.04¼	.04¾	.04¾	.04¾	.04¾	.....	13,000
Buckhorn	1	.06¾	.06¾	.06¾	.06¾	.06	.06¾	.....	.06¾	.06¼	.06¾	.06	.06¼	4,000
Cadillac	1	.....	.02	.02	.02¼	.....	.02¼	.01¾	.02	.0 ¾	.02	.01¾	.02	3,000
Central C'n	1	.06¾	.07	.06¼	.....	.07¾	.08	.06¾	.06¼	.....	.07	.06	.06¾	13,000
Champion	1	.07¾	.....	.07¾	.08	.07¾	.08	.07¾	.08	.07¾	.07¾	.07¾	.08	4,000
Chicolo	1	.06¾	.04	.03¾	.03¾	.03¼	.05¾	.03¼	.03¼	.03¼	.03	.03¼	.....	11,000
C.K. &N	1	.02¾	.02¾	.02¾	.02¼	.02¾	.02¼	.0¾	.03¼	.02¼	.02¾	.0 ¾	.02¾	10,000
C.C.Col'bia	1	.09¼	.09¾	.....	.09¾	.09	.....	.08¾	.08	.08¾	.07¾	.07¾	.08	21,000
C.C G Ext	1	.....	.10	.....	.10	.....	.10	.....	.10	.....	.10	.....	.....	.....
C C. & Man	1	.11¾	.11¾	.11¾	.11¾	.11¾	.11¾	.10¾	.10¾	.10¾	.10¾	.10¾	.10¾	59,000
Copper Mt.	1	.05	.05¾	.05¼	.05¾	.05	.05¾	.04¾	.05	.04¾	.04¾	.04¼	.04¾	9,000
Cr ede&CC	1	.14¾	.15¾	.14¾	.15	.14¾	.15	.14¾	.15	.14¾	.15	.14¾	.15	8,650
C. C. Con.	1	.14	.14¾	.14	.14¾	.14	.14¾	.13¾	.14	.13¾	.13¾	.13¾	.13¾	26,500
Dante	1	.14¾	.15	.14¼	.14¾	.14	.14¾	.14	.14¾	.14	.14¾	.14¼	.14¾	76,000
Des Moines	1	.06¾	.06¾	.06¼	.06¼	.06¾	.06¾	.06¼	.06¾	.06¼	.06¼	.06	.06¼	13,000
Eclipse	1	.08¾	.....	.....	.08¾	.08¾	.08¾	.08¾	.09	.08¾	.08¾	.....	.08¾	6,000
ElktonCon	1	1 16¾	1.15	1.16	1.15	.16	1.18	1.14	1.14	1 11	1.18	.12	1.-4¾	7,500
El Paso G	1	.40¾	.41	4.1	.41	.40	.41	.39	.40¾	.39	.40	.39	.18	8,86
Enterprise	1	.21	.22	.21	.2.¾	.21	.21¾	.2.¾	.2.¾	.20¾	.20¾	.20	.2.¼	6,000
F.Rawlings	1	.40	.40¾	.39	.40	.39	.41	.40	.40¾	.4 ¾	.39¾	.40	.....	11,000
Favorite	1	.06¾	.0 ¾	.06	.06¼	.06¼	.06¼	.06	.06¾	.06	.05¾	.06	.06¾	45,000
Findley	1	.15¾	.15¾	.15¾	.15¾	.15¾	.15¾	.15¾	.15¾	.15¾	.15¾	.1.¾	.15¾	115,500
Garf. Con	1	.20	.30¾	.2.¾	.3.¾	.2.¾	.30¾	.20¾	.2.¾	.2.¼	.20¾	.20	.2.¾	70,517
Golden Fl	1	.35	.....	.....	.....	.31¾	.....	.34	.....	.34	.....	.34	.....	2,40
Gold Hill	1	.02¾	.03	.02¾	.03	.....	.03	.02¾	.03	.2.¾	.02¾	.02¾	.18	12,000
Gold.Sov'n	1	.11¾	.11¾	.11	.11¼	.10¾	1 ¾	.1.¾	.11	.10¾	.10¾	.1.¾	.10¾	53,500
Hayd-n	1	.02	.02¼	.02	.02¼	.02	.02¼	.02	.02¼	.01¾	.02	.01¾	.02	21,000
Ida May	1	.26¾	.26¾	.26¼	.27¼	.26¾	.27	.26¾	.27	.....	.27	.26¾	.2 ¾	7,000
Indep'ndce	1	.7 ¾	.73	.70¾	.71¾	.69¾	.71	.68	.69	.6	.68	.6.¾	.6.¾	12,50
Ing. Con	½	.22¾	.23¾	.22	.22¾	.22	.23¼	.21¾	.21¾	.21¾	.21¾	.21¾	.21¾	86,500
Isabella	1	.....	1.14¾	1.13¾	1.14	1 10	1 14	1.10¼	1.10¾	1 10	1.10¾	1	1 ¾	20,400
Jack Pot	1	.59¼	.60¾	.6.	.....	.6.	.6 ¾	.59	.6.	.....	.60¾	.59¾	.60	9,550
Josephine	1	.....	.....	.02	.02¾	.02¼	.02¾	.02	.02¼	.02	.02¼	.02¼	.02¼	13,000
Key West	1	.04¼	.0	.....	.05¾	.04¾	.05	.....	.05	.....	.04¾	.04¼	.04¾	22,000
Lexington	1	.19¾	.19¾	.19	.19¼	.18¾	.18¾	.17	.17¾	.17¼	.....	.17¼	.17¾	.0 ,000
Maguet R	1	.....	.04	.03¾	.04	.03¾	.04¼	.....	.04	.03¾	.03	.03¼	.04¼	4,000
Margaret	1	.03¾	.03¾	.03¼	.03¾	.03¼	.03¾	.03¾	.04	.03¾	.03¾	.03¼	.03¼	4 000
Margery	1	.04¾	.05¾	.04¾	.04¾	.04	.05	.04¾	.0 ¾	.04¾	.05¾	.03¾	.04	19,400
Matos	1	.25	.26¼	.25	.26¼	.24	.26	.25	.....	.2.	.....	.25	.2 ¾	4,000
Midway	1	.07¼	.07¾	.07¼	.07¾	.07	.07¾	.06	.07	.06¼	.07	.....	.6¾	.....
M J T	1	.03¾	.04	.....	.04	.03¾	.04	.....	.04¼	.03¾	.04	.03¾	.04	8,00
Mobile	1	.03¾	.03¾	.03¼	.03¼	.03¾	.04	.03¼	.03¼	.03	.03¼	.03¾	.03¼	4.0.
Moll.Dwyer	1	.03¾	.0.¾	.0.¾	.03¼	.03¾	.03¾	.04	.04	.03¾	.0.¾	.03	.0.¾	4,000
Mollie Gib	1	.24¾	.26	.25	.2¾	.17	.28	.22	.....	.....	.....	.....	.26	1,200
Monarch	1	.0.¾	.07	.06¾	.07	.07¼	.07¾	.07¾	.07¾	.07¼	.....	.07¾	.07¾	25,000
Montreal	1	.....	.07	.....	.07	.....	.07	.....	.07	.....	.07	.....	.07	.....
Moon-A'o'r	1	.70¾	.72	.65	.70	.....	.67	.65	.67	.61	.65	.6.¾	.65	7,400
Morning S	1	.....	.04¾	.04	.04¼	.....	.....	.03¾	.04¼	.03¾	.04	.....	.04	.....
Mtn.Beauty	1	.09¾	.10	.09¼	.09¾	.09¼	.09¾	.09	.09¾	.08¾	.09	.08¾	.08¾	50,500
Mt Rose	1	.75	.81	.73	.79	.72	.74¾	.69	.78	.....	.74	.6	.76	500
National	1	.09¾	.10	.09¼	.....	.09	.07¾	.05¼	.07¾	.08	.08	.03¼	.09¼	19,400
Nellie V	1	.10¾	.11	.10¾	.11	.....	.11¾	.11¾	.10	.....	.10	.10	.11	25,000
New Haven	1	.09	.09¼	.09	.09¼	.05¾	.09	.08¾	.09¾	.08¾	.08¾	.08¼	.09¾	131 500
OliveB'nch.	1	.....	.0.¾	.07	.07¾	.....	.....	.07¾	.6¾	.07¾	.06¾	.07¾	.....	8,000
Oriole	1	.04¾	.05	.04¾	.05	.....	.05	.04¾	.05	.04¾	.05	.04¼	.04¾	8, 00
Orphan	1	.20	.21¾	.21	.21¾	.2 ½	.22¾	.21¾	.22	.21¾	.22	.21¾	.22	4,000
Pelican	1	.....	.01	.....	.....	.02¼	.....	.02	.02¾	.02	.02¾	.....	.03	2,000
Pharmacist	1	.13¾	.13¼	.13¾	.13¼	.12¼	.12¾	.11¾	.12¼	.12	.14¼	.12	.12¼	18,000
Pilgrim	1	.13¾	.13¾	.13	.14	.12¾	.13	.14	.13	.12	.14¾	.12	.12¾	2,0
Pinnacle	1	.03¾	.....	.19¾	.19¾	.18¾	.19¼	.1 ¾	.19¾	.18¾	.19	.....	.19	57. 00
Portland	1	2.41	2.45	2.40	2.44	2.38¾	2.39	2 38¾	2.39	2.38¼	2.3.¾	2.32	2.40	17,5 0
Prince Alb.	1	.05	.05¾	.....	.....	.04¾	.14¾	.14¾	.05	.04¾	.04¾	.04¼	.04¾	3,000
Princess	1	.05¾	.05¾	.05	.05¾	.05	.05¾	.05	.05¾	.05	.0 ¾	.05	.05¾	2,000
Progress	1	.....	.18¾	.....	.08¾	.....	.08¼	.....	.08¾	.....	.08¾	.....	.08¾	6,000
Pythias	1	.06¾	.07	.....	.07	.....	.06¾	.06	.05¾	.06¼	.05¼	.....	.6	3,000
Raven	1	.68	.....	.68	.68¾	.68	.67	.68	.66¼	66	.70	.66¼	.67	16,200
Rob'tBurns	1	.06¾	.07	.06¾	.06¼	.06¾	.05	.06	.06	.06¼	.0.¾	6	.....	9,000
Rose Maud	1	.....	.05¾	.05	.....	.04¾	.08	.04¾	.05	.04¾	.04¾	.....	.....	24,000
Rose Nicol	1	.11¾	.11¾	.....	.11¾	.1.¾	11	.10¾	.10¾	.10¾	.10¾	.0.¾	.1 ¾	29,5 0
Silver Gold.	1	.13¾	.13¾	.13¼	.13	.....	.12¾	.....	.12¾	.12¼	.12¾	.12¾	.13	14,500
Specimen	1	.01¼	.01¾	.01¼	.01¾	.01¼	.02	.0.¾	.04	.01¾	.0.¾	.01¼	.01¾	4,000
Tornado	1	.49	.....	.48	.50	.....	.....	.....	.48	.48¾	.47¾	.48	.....	4,900
Tourairne	1	.06¾	.07	.07¾	.07¾	.07	.07¾	.07	.07¾	.07	.07	.07	.07¾	57,000
Trachyte	1	.....	.06	.....	.07	.06¾	.07	.....	.06¼	.....	.....	.....	.07	.....
Uncle Sam	1	.....	.05¾	.....	.05	.05¾	.05¾	.....	.06	.....	.05¾	.04¾	.....	.....
Union	1	.49¾	.50	.49¾	.50¼	.49¾	50	.49¼	.49¾	.45	.49¾	.42¾	.49¼	19,750
Vindicator	1	1.40	.....	1.53	.....	1.50	.....	1.50	.....	1 50	.....	1.55	.....	.....
Work	1	.32¾	.33	.32¾	.....	.32¼	33	.32¼	.32¾	.32¼	.32¾	.32	3 ¼	16,00
Zenobia	1	17¾	.18	16	.17¾	.16	16¼	.15¾	.16¾	.15	.17	.....	.17	16,10

‡ Colorado Springs Mining Stock Exchange. Total sales, 1,685,926 shares.

MONTREAL, CANADA.*

Name of Company.	Par Val	Week, Apr. 1. H.	Week, Apr. 1. L.	Sales.
Big Three	$1	.09½	.06¼	18,550
California	1	.12	.09¼	4,000
Can. Gold Fields	0.10	08	06	.....
Decca	1	.10	09	62,200
Deer Trail Con	1	.11¾	08	94,750
Giant	1	.....	.....	.....
Golden Star	1	.20¾	13	16,300
Gold Hills Dev	1	.04¾	.02	.....
Knob Hill	1	76	53	2,550
Majestic	1	.....	.....	.....

Name of Company.	Par Val	Week, Apr. 10. H.	Week, Apr. 10. L.	Sales.
Monte Christo	$1	.05	.03¾	1,000
Montreal G. F	1	.07	.03	800
Montreal-London	0.24	.33	.28	12,800
Okanogun	1	.02¾	.....	11 500
Payne	1	.31	25	500
Rambler-Cariboo	1	28	18	.....
Republic on	1	1 18	1.03	16,300
Slocan-Sovereign	1	31	.26	2,800
Virtue	1	1 19¼	1.04¾	35,800

* Montreal Stock Exchange. Total sales, 198,150 shares

MEXICO.

Mar. 31.

Name of Company.	No. of shares.	Last div'd.	Prices. Op'g	Prices. Cl'g.
Durango:				
Barradon y Cab	2,400	.....	$40	$40
Candelaria de Pan.	1,200	.....	20	20
Capuzaya Guan	2,400	.....	20	20
Restauradora	10,000	.....	20	20
Guanajuato				
Angustias	2,400	5.00	245	230
Cinco Senores y An	2,000	15 00	350	355
Guadalupe Hacie'a	0,000	2.00	220	200
Trinidad, aviadora	2,000		10	6
do. aviada	400		10	10
Zona Minera de Pox	2,400		15	6
Hidalgo:				
Amistad y Concord	9,600	1.47	25	28
Arevalo	720		20	200
Bartolome de Med	2,000	2.00	65	70
Carmen	1,100	7.75	230	200
Las Ca Maravillas	800		120	140
Pabellon	800	27.80	30	30

Name of Company.	No. of shares.	Last div'd	Prices. Op'g.	Prices. Cl'g.
Hidalgo:				
Real del Monte	2,554	10 00	506	500
San Francisco Hc	6,000	3.00	195	170
Soledad	960	5.00	330	280
Sorpresa	960	7.50	260	300
Union Hacienda	2,000	5.00	320	300
Mexico:				
Coronas	500		75	75
Esperanza y An	3,000	10.00	1,560	1,500
Michoacan				
Luz de Borda ava	4,000		22	18
S. Luis Potosi				
Concep. y An	2,400		180	205
Zacatecas:				
Asturiana y An	2,500	10.00	205	175
Cabezon	2,400		15	15
C'delar. de Pinos	2,500		250	240
Palma de Somb	2,400		80	40

DENVER, COLO.‡

Name of Company.	Par val.	Mar. 31. B.	Mar. 31. A.	Apr. 2. B.	Apr. 2. A	Apr. 3. B	Apr. 3. A	Apr. 4. B.	Apr. 4. A.	Apr. 5. B.	Apr. 5. A.	Apr. 6 B.	Apr. 6 A.	Sales
Acacia	1	.....	.....	.....	.....	.29¾	.30	.27½	.28¾	.....	.....	.26	27	1,000
Amer Gold	1	.....	.....	.....	.....	.....	.....	.05	06 8	.....	.....	.005	.008¾	.....
Arg. J	1	.....	.....	.21¾	.....	.....	.21¾	.....	.....	.....	2.1	.....	.30¾	2 0
Bankers	1	.20	.21	.....	.....	.20	.....	.19¾	.20¾	.20	.....	.....	.....	.....
Cr. & Cr. C	1	.14¾	.15¾	.....	.....	.14¾	.....	.....	.14¾	.....	.....	.....	.....	.....
Dante	1	.21¾	.22¼	.....	.....	.20	21¾	19¾	.....	.....	.....	.14¾	.....	.....
Dictator	1	.02¾	.03¾	.....	.....	.02¾	.03¾	.01¾	.03¼	.....	.....	.19¾	.....	2,0 0
Favorite	1	.....	.....	.....	.....	(6	06¾	(6	.06¾	.06	.06¾	.02¾	.03	....
G ld King	1	.....	11¾	.....	.....	.....	.....	.....	.....	.10	.10¾	.06	(6¾	....
Ironclad	1	.....	.....	.....	.....	.....	.....	.....	.....	.04¾	.....	.10¾	.10¾	1,000
Isabella	1	.....	1.14¾	.....	.....	.....	.....	1.10	1 11¾	1 1¾	1 ¾	.....	.....	.....
Lexington	1	.....	.....	.....	.....	.....	.....	.17	.....	.....	.....	.17	.....	.....
LittleCorol	1	.01	.01¾	.....	.....	01	01¾	.01	01¾	.01	0 ¾	01	01¾	40,000
Mt Beauty	1	.09¾	.0	.....	.....	.....	.11¾	09	.09¼	.08¾	.1.¾	.09¾	.09	.....
New Haven	1	.09¾	.10¼	.....	.....	.09¾	.09¾	.08¾	.05¾	.8¾	.09¾	.08¾	.....	3,000
New Zeal'd	1	.43¾	.50	.....	.....	.....	.....	.40	.50	.40	.....	.42	.....	1.0
Omega	1	.02	.02¾	.....	.....	.02¾	.02¾	.02	.....	.....	.....	.01¾	.02¼	11,000
Pilgrim	1	.006	.008¾	.....	.005	.008	.006	.....	.....	.....	.....	.....	.0 9	.....
Puritan	1	.0.¾	.....	.....	.....	.01¾	.01¾	.01¼	.01¾	.....	.....	.01¾	.0.¾	3,000
Raven	1	.....	.....	.....	.....	.67	.70	66	.68	.....	.....	.....	.5 ¾	.....
Union	1	.49¾	50	.....	.....	.....	.....	.....	.50	.....	.....	.....	.....	.....
Vindicator	1	.....	.....	.....	.....	.....	.....	.....	.....	1.54	.....	1.50	.....	.....
Wire Gold	1	0¾	.....	.....	.....	01	.01¾	.01¼	.....	.....	.....	.01	01¾	.....
Work	1	32¾	.34	.....	.....	.32	32¾	.....	.....	82	.3 ¾	.82	.....	50

‡ Official Quotations Denver Stock Exchange. Total sales, 61,800 shares.

PARIS.

Mar. 22.

Name of Company.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning	Prices. Closing.
			Francs.	Fr.	Fr	Fr	Fr
Acieries de Creusot	France	Steel mfrs	27,000,000	2,000	75.00	1,95 . 0	1,950 00
" " Firminy	"	" "	2,000,000	500	125.00	3,750.00	3,800.00
" " Five-Lille	"	" "	12,000,000	500	35.00	570 0	562 00
" " Huta-Bank	Russia	Iron & steel	.....	500	.....	4,925 0	5.0 0 00
" " la Marine	France	Steel mfrs	20,000,000	500	?0.00	1,950.00	1,897 00
Anzin	"	Coal	.....	.....	220.00	7,050.00	7,050.00
Boleo	Lower Cal.	Copper	.....	500	1.07	3,085.0	3,060.00
Brianak	Russia	Coal & Iron	.....	500	.....	1,297.50	1,3 7.50
Champ d'Or	S. Africa	Gold	5,375,000	25	3.75	35.0	36.75
Courrieres	France	Coal	600,000	300	70.00	3,100.00	3,150.0
Dombrowa	Russia	Coal	.....	500	12.50	1,14 .00	1, 38 00
Donets	"	Steel	.....	.....	.....	1,215.00	1,200.00
Dynamite Centrale	France	Explosives	.....	500	20.00	450.00	4 1.00
Escombrera-Bleyberg	Spain	Lead	.....	500	35.00	1,305 00	1,3 1 00
Fraser River	Brit. Col'mb	Gold	250,0.0	25	.....	10 00	9 25
Huanchaca	Bo.ivia	Silver	40,000,000	125	5.00	127.00	130 00
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	6o5 00	615.00
Malfidano	Italy	Zinc	12,500,000	500	50.00	1,380.00	1,37 .0
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	30.00	530.00	532 00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,32 00	1,321.00
Naphte Baku	Russia	Petroleum	.....	.....	.....	815 7.	812 50
Napthe, Le	"	"	.....	.....	.....	1,3 0.00	1,300.0
Napthe Nobel	"	"	.....	.....	.....	707.00	675. 0
" " parts	"	"	.....	.....	.....	14,150.00	3 937.00
Nickel	N. Caled'nia	Nickel	10.000.000	200	10.00	522.50	570.00
Penarroya	Spain	Coal, etc	.....	500	65.00	2,875.00	2,888 00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25	.....	5.25	5 50
Salines de l'Est	France	Salt	.....	500	6.50	225.00	225.00
Salines du Midi	France	" etc	.....	500	25.00	1,047.00	1,035.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	$6 00	829.00	827.00

LONDON.

Mar. 30.

Name of Company.	Country.	Authorised capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
			£ s. d	s.d.		£ s. d.	£ s. d
Alaska Goldfields	Alaska	£300,000	1 0 0	2 1	Mar., 1899	1 17 6	1 0 0
Alaska-Mexican, g	"	200,.50	1 0 0	0 4.8	Jan., 1900	15 0	17 6
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	4 15 0	5 0 0
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2	Apr., 1900	10 2 6	10 7 6
Chiapas, g., s., c	Mexico	252,500	1 0 0	.....	.....	5 0	7 0
De Lamar, g., s	Idaho	400,000	1 0 0	6	May, 1899	3 8	4 6
Elkhorn Priority (New), s	Colorado	87,500	1 0 0	2 0	June, 1898	3 3	3 9
Golden Gate, g	California	80,000	1 0 0	.....	.....	1 0	2 0
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Jan., 1900	1 8 9	1 1 3
Hall Mines, c., s	British Col	250,000	1 0 0	1 0	May, 1899	2	3 0
Le Roi, g	" "	1,000,000	5 0 0	5 0	Nov., 1899	5 1 3	5 3 9
Lillie, g	Colorado	250,000	1 0 0	2¾	Apr., 1900	15	1 0 0
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	3 6	4 6
Newfoundland, c	Newfoundland	250,000	1 0 0	.....	.....	5 0	10 0
Palmarejo & Mexican, g., s	Mexico	80),000	1 0 0	.....	.....	2 0	3 0
*Stratton's Independence	Colorado	1,100,000	1 0 0	2 0	Mar., 1900	2 15 0	2 17 6
Copiapo, c	Chile	200,000	2 0 0	4 0	Dec., 1899	4 2 6	4 7 6
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1899	1 17 6	2 0 0
St. John del Rey, g	Brazil	800,000	1 0 0	1 0	Dec., 1899	1 6 3	1 9 9
UtahCon. g (High'ndBoy)	Utah	300,000	1 0 0	rts.	Mar., 1898	7 7 6	7 12 6
Velvet, g	BritishCol'mbia	100,000	1 0 0	.....	.....	1 0 0	1 5 0
Ymir, g	"	200,000	1 0 0	1 0	Nov., 1899	1 3 9	1 6 3
*British Am. Corp	"	1,50 0,000	1 0 0	rts.	Dec., 1898	15 6	16 0
*Linares, l	Spain	45,000	8 0 0	15 0	Mar., 1900	9 0 0	10 0 0
Mason & Barry, c., sul	Portugal	430,000	2 0 0	5 0	May, 1899	4 17 6	5 2 6
Rio Tinto, c	Spain	1,625,000	5 0 0	1 15	Nov., 1899	57 5 0	57 10 0
" " pref	"	1,625,000	5 0 0	2 6	" 1899	6 5 0	6 10 0
Tharsis, c	"	1,250,000	2 0 0	15 0	Apr., 1900	10 7 6	10 12 6
Assoc. Gold Mines	W. Australia	300,000	1 0 0	1 6	Jan., 1900	4 17 6	5 0 0
Broken Hill Prop., s	N.S.Wales	384,000	8 0 1	0	Jan., 1900	2 3 1	2 9 0
Great Boulder Prop	W. Australia	1,750,000	2 0 0	6	Apr., 1900	1 14 6	1 12 6
Hannan's Brownhill, g	"	110,000	1 0 0	5 0	Jan., 1900	9 15 0	9 17 6
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	Jan., 1900	13 6 3	13 8 9
Kalgurlie, g	"	120,000	1 0 0	rts.	Oct., 1899	7 18 9	7 16 3
Lake View Consols, g	"	250,000	1 0 0	10 0	Feb., 1900	13 11 3	13 13 9
Mt. Lyell M. & R., l., c	Tasmania	975,000	3 0 0	5 0	Mar., 1900	9 17 6	10 2 6
Mt. Morgan, g	Queensland	1,000,000	1 0 0	7	Apr., 1900	5 1 3	5 3 9
Waihi, g	New Zealand	320,000	1 0 0	2 6	Apr., 1900	9 17 6	9 17 6
Champion Reef, g	Colar Fields	220,000	10 0	5 0	Jan., 1900	6 1 3	6 3 9
Mysore Gold, g	"	250,000	10 0	4 6	Nov., 1899	6 1 3	6 3 9
*Nundydroog, g	"	242,000	1 0 0	2 6	Mar., 1900	3 6 3	3 8 9
Ooregam, g	"	145,000	1 0 0	1 6	Dec., 1899	3 13 0	3 17 6
" pref. g	"	120,000	1 0 0	1 6	" 1899	4 17 6	5 1 3
British S. Af., chartered	So. Africa	5,000,000	1 0 0	rts.	May, 1899	3 8 9	3 12 6
Cape Copper, c	"	600,000	1 0 0	0 6	Jan., 1900	5 18 9	5 16 3
" pref	"	150,000	2 0 0	6 6	" 1900	5 0 0	5 10 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug , 1899	4 12 6	4 17 6
Con.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Author-ized Capital Stock.	Shares Issu'd No.	Par Val	Dividends. Paid, 1900.	Total to Date.	Latest. Date.	Amt.
1	Acacia, g.	Colo.	$1,500,000	1,500,000	$1	.....	.....	.....	.....
2	Etna Con., q.	Cal.	500,000	100,000	5	$30,000	$225,000	April. 1900	.15
3	Alabama Coal & Iron, pf	Ala.	2,500,000	25,000	100	43,750	43,750	Feb. 1900	1.75
4	Alamo, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
5	Alaska-Mexican, g.	Alask	1,000,000	180,000	5	18,000	447,031	Jan. 1900	.10
6	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	75,000	4,295,000	Jan. 1900	.37½
7	Alice, g. s.	Mont.	10,000,000	400,000	25	.....	1,075,000	April. 1898	.05
8	Alliance, g.	Colo.	500,000	450,000	1	.....	31,500	Dec. 1899	.07
9	Amalgamated, c.	Mont.	75,000,000	750,000	100	3,000,000	4,500,000	April. 1900	2.00
10	Amazon, g.	Colo.	600,000	600,000	1	42,000	62,000	Mar. 1900	.05
11	American Coal	Md.	1,500,000	60,000	25	75,000	802,500	Mar. 1900	1.25
12	American Gold, g. s. c. l.	Colo.	3,000,000	300,000	10	.....	446,000	Dec. 1899	.04
13	Amer. Sm. & Ref., pref.	U. S.	32,500,000	325,000	100	1,263,925	1,882,675	April. 1900	2.14
14	Am. Steel & Wire, pf.	U. S.	40,000,000	400,000	100	1,400,000	4,200,000	April. 1900	1.75
15	Am. Steel & Wire, com.	U. S.	50,000,000	500,000	100	875,000	875,000	April. 1900	1.75
16	American Zinc	Kas.	500,000	5,000	100	15,000	35,000	Mar. 1900	1.00
17	Am. Zinc, Lead & Sm.	Mo.	2,500,000	60,000	25	60,000	180,000	Jan. 9001	1.00
18	Anaconda Copper	Mont.	30,000,000	1,200,000	25	2,400,000	14,550,000	April. 1900	2.00
19	Anchoria-Leland, g.	Colo.	600,000	600,000	1	.....	198,000	April. 1899	.03
20	Anglo-Mexican, g.	Mex.	2,001,625	400,325	5	.....	1,728,993	Dec. 1898	.24
21	Apollo Con., g.	Alask	1,000,000	100,000	10	70,000	210,000	Jan. 1900	.07
22	Appie Ellen, g.	Colo.	600,000	600,000	1	.....	25,000	Aug. 1898	.01
23	April Fool	Nev.	500,000	500,000	1	.....	16,000	Oct. 1899	.01
24	Argentum-Juniata, g.	Colo.	1,300,000	650,000	2	.....	156,000	Oct. 1895	.03
25	Argonaut	Cal.	2,000,000	200,000	10	50,000	470,000	Mar. 1900	.05
26	Arizona Copper	Ariz.	3,190,550	.....	...	421,153	1,309,572	Mar. 1900	1.32
27	Associated, g.	Colo.	1,250,000	1,250,000	1	.....	84,000	Feb. 1899	.01
28	Atlantic, c.	Mich.	2,500,000	40,000	25	80,000	860,000	Feb. 1900	2.00
29	Aurora, l.	Mich.	2,500,000	100,000	25	.....	890,000	June. 1899	.50
30	Bald Butte	Mont.	250,000	250,000	1	.....	769,648	Dec. 1899	.03
31	Bankers, g.	Colo.	1,250,000	1,250,000	1	.....	.....	.....	.....
32	Bankok Cora Belle, s.	Colo.	600,000	600,000	1	.....	106,000	July. 1896	.01
33	Battle Mtn. Con., g.	Colo.	2,500,000	2,500,000	1	.....	.....	.....	.....
34	Big Four, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
35	Big Seven, g.	Cal.	100,000	100,000	1	.....	6,000	April 1898	.03
36	Big Six, g. s.	Colo.	500,000	500,000	1	.....	15,000	May. 1898	.00½
37	Boston-Aurora, pref.	Mo.	800,000	32,000	25	15,840	44,880	Mar. 1900	.17
38	Boston & California	Cal.	600,000	600,000	1	.....	72,000	June. 1899	.06
39	Boston & Colo. Smelting	Colo.	750,000	15,000	50	11,250	281,250	Jan. 1900	.75
40	Boston Duenweg, z.	Mo.	1,000,000	40,000	10	12,000	44,000	Mar. 1900	.10
41	Boston Get There, z.	Mo.	250,000	22,500	10	6,750	18,000	Mar. 1900	.10
42	Boston-Little Circle, z.	Mo-K.	1,000,000	100,000	10	30,000	110,000	Mar. 1900	.10
43	Boston & Mont. Con.	Mont.	3,750,000	150,000	25	1,200,000	15,700,000	Feb. 1900	8.00
44	Boston Providence, z.	Mo.	150,000	15,000	10	2,250	9,750	Mar. 1900	.05
45	Boston, q.	Cal.	1,000,000	100,000	10	10,000	20,000	Jan. 1900	.10
46	Boston Sunflower, z.	Mo.	150,000	15,000	10	.....	4,500	Oct. 1899	.30
47	Breece, i.	Colo.	5,000,000	200,000	25	10,000	80,000	Feb. 1900	.05
48	Buffalo Hump	Idaho	1,000,000	1,000,000	1	20,000	20,000	April. 1900	.01
49	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	30,000	2,468,400	Mar. 1900	.10
50	Bunker Hill & Sullivan.	Idaho	3,000,000	300,000	10	63,000	864,000	Mar. 1900	.07
51	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	2,000,000	68,850,000	Mar. 1900	20.00
52	Cambria Steel	Pa.	16,000,000	320,000	50	160,000	1,280,000	Feb. 1900	.50
53	Cariboo-McKinney, g.	B.Col	800,000	800,000	1	.....	311,965	June. 1899	.01½
54	Centen l-Eureka, g.s.l.c.	Utah.	5,000,000	100,000	25	17,700	2,167,700	Mar. 1900	.59
55	Central Lead, l.	Mo.	1,000,000	10,000	100	15,000	157,000	Mar. 1900	.50
56	Champion, g. s.	Cal.	340,000	34,000	10	.....	321,700	Nov. 1899	.25
57	Charleston, p. r.	S. C.	1,000,000	10,000	100	.....	200,000	June. 1899	2.00
58	Colonial, l.	Mo.	1,000,000	1,000,000	1	.....	10,000	Aug. 1899	.01
59	Colorado Smelting	Mont.	1,000,000	100,000	10	.....	1,945,000	Dec. 1899	1.00
60	Commodore	Colo.	1,200,000	1,200,000	1	.....	432,000	Jan. 1899	.04
61	Commonwealth, z., pref.	Mo.	500,000	100,000	5	15,000	35,000	Mar. 1900	.05
62	Consolidated Gold Mines	Colo.	1,000,000	1,000,000	1	20,000	30,000	Mar. 1900	.01
63	Consolidation Coal	Md.	10,250,000	102,500	100	205,000	5,921,650	Feb. 1900	2.00
64	Cons. Zinc & Lead, pf.	Mo.	400,000	400,000	1	8,000	8,000	Jan. 1900	.20
65	Continental, z.	Mo.	1,500,000	150,000	10	.....	.....	.....	.....
66	Cordell, z. l.	Mo.	300,000	60,000	5	6,000	6,000	Mar. 1900	.05
67	Crippie Creek Con.	Colo.	2,000,000	2,000,000	1	160,000	160,000	Mar. 1900	.08
68	Cresus, g.	Cal.	1,000,000	190,000	5	11,400	60,400	Mar. 1899	.06
69	Crowned King, g. s.	Ariz.	6,000,000	600,000	10	.....	242,760	May. 1899	.02
70	Dalton & Lark, g.s. l.	Utah.	2,500,000	2,500,000	1	.....	87,500	Mar. 1896	.00½
71	Daly	Utah.	3,000,000	150,000	20	.....	2,925,000	Mar. 1897	.25
72	Daly West	Utah.	3,000,000	150,000	20	150,000	270,000	Mar. 1900	.25
73	Damon, g.	Colo.	2,000,000	2,000,000	1	.....	.....	.....	.....
74	Deadwood-Terra, g.	S. D.	5,000,000	200,000	25	.....	1,350,000	May. 1898	.15
75	Deer Trail Con.	Wash	3,000,000	3,000,000	1	.....	55,000	Dec. 1899	.00½
76	De Lamar, g. s.	Idaho	2,000,000	400,000	5	.....	2,346,000	May 1899	.12
77	Della S., g.	Colo.	1,000,000	1,000,000	1	.....	60,000	Jan. 1897	.01
78	Delta, l. z.	Mo.	100,000	100,000	1	2,685	6,785	Mar 1900	.01
79	Doe Run, l.	Mo.	500,000	5,000	100	7,500	97,500	Mar. 1900	.50
80	Dutch, g.	Cal.	1,500,000	130,000	10	.....	39,000	Feb. 1898	.05
81	Eldorado, g.	Cal.	1,000,000	100,000	10	.....	10,000	July. 1899	.10
82	Elkhorn, New, s. l.	Colo.	437,500	87,500	5	.....	1,325,000	June. 1898	.48
83	Elkton Con., g.	Colo.	1,250,000	1,125,000	1	33,750	754,461	Mar. 1900	.03
84	El Paso, g. s.	Colo.	650,000	650,000	1	.....	12,393	Jan. 1898	.01
85	Empire State-Idaho	Idaho	1,000,000	98,514	10	88,662	406,700	Mar. 1900	.30
86	Enterprise, s. l.	Colo.	500,000	500,000	1	.....	900,000	Sept. 1898	.05
87	Fanny Rawlings, g. s.	Colo.	1,000,000	1,000,000	1	.....	20,000	Aug. 1899	.01
88	Federal Steel, pf.	U. S.	100000,000	532,619	100	3,195,660	4,793,520	April. 1900	3.00
89	Federal Steel, com.	U. S.	100000,000	464,843	100	1,743,161	1,743,161	Mar. 1900	2.50
90	Fern, g.	B.Col	200,000	200,000	1	.....	10,000	Jan 1898	.05
91	Ferris-Haggarty, c.g.s.	Wyo.	1,000,000	1,000,000	1	.....	5,000	Feb. 1899	.00½
92	Findley, g.	Colo.	1,250,000	1,250,000	1	.....	.....	.....	.....
93	Florence, s.	Mont.	2,500,000	400,000	5	.....	230,000	Dec. 1899	.05
94	Frisco Con., l. s.	Idaho	2,500,000	500,000	5	.....	920,000	Nov. 1899	.25
95	Galena, s. l. g.	Utah.	1,000,000	100,000	10	.....	71,000	Sept. 1897	.05
96	Garfield Con., g.	Colo.	1,200,000	1,200,000	1	.....	34,000	May. 1899	.01
97	Geyser-Marion, g.	Utah.	1,500,000	300,000	5	.....	96,000	Sept. 1898	.02
98	Gold Coin of Victor, g.	Colo.	1,000,000	1,000,000	1	60,000	420,000	Mar. 1900	.02
99	Gold & Globe, g.	Colo.	750,000	750,000	1	.....	51,625	July. 1898	.00½
100	Gold King, g.	Colo.	1,000,000	1,000,000	1	30,000	120,000	Jan. 1900	.03
101	Gold Sovereign, g.	Colo.	3,000,000	3,000,000	1	.....	.....	.....	.....
102	Golden Cycle, g.	Colo.	1,000,000	200,000	5	30,000	288,500	Mar. 1900	.05
103	Golden Eagle, g.	Colo.	500,000	500,000	1	.....	20,000	Nov. 1899	.01
104	Golden Fleece, g. s.	Colo.	600,000	600,000	1	.....	569,480	Feb. 1897	.01
105	Golden Reward, g.	S. D.	1,000,000	100,000	10	.....	155,000	Feb. 1898	.15
106	Golden Star, g.	Ont.	1,200,000	1,200,000	1	.....	45,500	July. 1899	.00½
107	Gould, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
108	Grafton, g.	Colo.	1,000,000	1,000,000	1	.....	10,000	Oct. 1899	.01
109	Grand Central, g.	Utah.	250,000	250,000	1	.....	666,250	Sept. 1899	.24
110	Grand Gulch	Ariz.	250,000	240,000	1	4,800	4,800	Feb. 1900	.01
111	Grass Valley Expl	Cal.	100,000	30,000	2	22,500	52,500	Mar. 1900	.25
112	Gwin, g.	Cal.	1,000,000	20,000	50	15,000	116,500	Mar. 1900	.25
113	Hall Mines, Ltd.	B.Col	1,500,000	250,000	5	.....	120,000	May. 1899	.24
114	Hecla Con.	Mont	1,500,000	30,000	50	.....	2,190,000	Dec. 1898	.50
115	Hidden Treasure, g.	Cal.	500,000	360,000	1	.....	3,600	July. 1899	.01
116	Holy Terror, g.	S. D.	500,000	500,000	1	.....	167,000	Dec. 1899	.01
117	Homestake, g.	S. D.	21,000,000	210,000	100	315,000	8,458,750	Mar. 1900	.50
118	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	.....	5,250,000	Mar. 1899	.05
119	Ida May, g.	Colo.	500,000	500,000	1	.....	.....	.....	.....
120	Idaho, s. l.	B.Col	500,000	500,000	1	.....	292,000	Jan. 1899	.05½
121	Independence Town & M	Colo.	1,250,000	1,250,000	1	25,000	37,500	April. 1900	.01
122	International, z.	Mo.	$1,000,000	1,000,000	$1	$15,000	$15,000	April. 1900	.01
123	Iowa, g. s. l.	Colo.	1,666,667	1,666,667	1	7,500	97,500	Jan. 1900	.00¾
124	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10	.....	507,500	April. 1898	.02
125	Iron Silver, s. l.	Colo.	10,000,000	500,000	20	.....	2,500,000	April. 1889	.20
126	Isabella, g.	Colo.	2,250,000	2,250,000	1	67,500	607,500	Mar. 1900	.03
127	Jack Pot, g.	Colo.	1,250,000	1,250,000	1	.....	175,000	Dec. 1899	.06
128	Jamison	Cal.	3,900,000	390,000	10	.....	50,700	April. 1899	.10
129	Keystone, g.	Colo.	1,500,000	1,500,000	1	.....	.....	.....	.....
130	Klondike Bonanza, Ltd.	Klond	750,000	52,750	5	.....	12,000	Aug. 1899	.24
131	Lake Superior Iron.	Mich.	2,100,000	84,000	25	.....	2,132,000	Feb. 1899	1.00
132	Last Chance, s. l.	B.Col	500,000	500,000	1	.....	45,000	Apr. 1899	.05
133	Last Dollar, g.	Colo.	1,500,000	1,500,000	1	30,000	60,000	Feb. 1900	.02
134	Le Roi, g.	B.Col	5,000,000	200,000	5	.....	1,305,000	Nov. 1899	1.20
135	Lexington, g.	Colo.	1,500,000	1,500,000	1	.....	.....	.....	.....
136	Lillie, g.	Colo.	1,250,000	250,000	5	33,750	335,360	Mar. 1900	.05
137	Little Tiger, g.	Cal.	500,000	500,000	1	15,000	47,500	Feb. 1900	.01½
138	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	40,000	1,650,000	Jan. 1900	.10
139	Marion Con.	Colo.	5,000,000	500,000	10	.....	300,000	May. 1899	.01
140	Mary McKinney, g.	Colo.	1,000,000	1,000,000	1	30,000	60,000	Jan. 1900	.03
141	Maryland Coal, pf.	Md.	1,885,005	18,850	100	.....	546,619	Dec. 1899	3.00
142	Matoa, g.	Colo.	1,000,000	1,000,000	1	.....	25,000	Dec. 1898	.02½
143	Mercur, g.	Utah.	5,000,000	200,000	25	50,000	453,700	April. 1899	.12
144	Minnesota Iron.	Minn.	16,500,000	165,000	100	.....	4,735,000	Oct. 1898	1.50
145	Missouri Zinc Fields, pf.	Mo.	400,000	16,000	25	7,930	29,242	Mar. 1900	.16
146	Modoc, g. s.	Colo.	500,000	500,000	1	15,000	160,000	Mar. 1900	.01
147	Mollie Gibson, s. l.	Colo.	5,000,000	1,000,000	5	.....	4,080,000	Jan. 1895	.05
148	Monarch, g.	Colo.	1,000,000	1,000,000	1	120,000	120,000	April. 1900	.12
149	Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5	.....	453,700	April. 1899	.12
150	Montana Ore Purchas'g.	Mont.	2,500,000	80,000	25	80,000	1,440,000	Feb. 1900	1.00
151	Montreal, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
152	Monument, g.	Colo.	300,000	300,000	1	.....	18,124	Nov. 1899	.01
153	Moon-Anchor Con., g.	Colo.	1,750,000	600,000	1	.....	261,000	Nov. 1898	.07½
154	Moose, g.	Colo.	600,000	600,000	1	.....	186,000	Feb. 1896	.01
155	Morning Star Drift, g.	Cal.	240,000	2,400	100	.....	847,200	Nov. 1899	10.00
156	Morse, g.	Colo.	1,250,000	1,250,000	1	.....	213,150	May. 1899	.12
157	Mountain Beauty, g.	Colo.	2,000,000	2,000,000	1	.....	.....	.....	.....
158	Mt. Rosa, g.	Colo.	1,000,000	1,000,000	1	.....	75,000	Dec. 1899	.04
159	Mt. Shasta	Cal.	100,000	20,000	5	.....	6,000	May. 1899	.30
160	Moulton	Mont.	2,000,000	400,000	5	.....	500,000	Oct. 1899	.05
161	Mountain Copper.	Cal.	6,250,000	250,000	25	.....	1,173,750	Oct. 1899	2.16
162	Napa Con., q.	Cal.	700,000	100,000	7	40,000	1,080,000	April. 1900	.20
163	National Lead, com.	U. S.	15,000,000	149,054	100	149,054	1,341,486	Mar. 1900	1.00
164	National Lead, pf.	U. S.	15,000,000	149,040	100	260,820	8,607,060	Mar. 1900	1.75
165	National Salt, pf.	U. S.	5,000,000	24,000	100	42,000	126,000	Jan. 1900	1.75
166	National Steel, pf.	U. S.	27 000,000	270,000	100	.....	1,890,000	Dec. 1899	1.75
167	New Central Coal.	Md.	1,000,000	50,000	20	20,000	490,000	April. 1900	.40
168	New Idria, q.	Cal.	500,000	100,000	5	40,000	210,000	April. 1900	.20
169	New York Zinc.	Mo.	700,000	28,000	25	21,000	42,000	Mar. 1900	.25
170	N. Y. & Hon Rosario, s. g.	C. A.	1,500,000	150,000	10	45,000	1,205,000	Mar. 1900	.10
171	North Star Mines of N. J.	Cal.	5,000,000	250,000	10	.....	50,000	Nov. 1899	.20
172	Nugget.	Colo.	1,000,000	1,000 000	1	.....	35,000	Aug. 1898	.00½
173	Okanogan, g.	Wash	62,500	1,250,000	05	.....	3,125	Oct. 1899	.00¼
174	Ontario, s. l.	Utah.	15,000,000	150,000	100	45,000	13,617,500	Jan. 1900	.30
175	Ophir, g.	Colo.	700,000	700,000	1	.....	.....	.....	.....
176	Orphan Belle, g.	Colo.	1,000,000	1,000,000	1	.....	197,899	Dec. 1899	.09
177	Original Empire, g.	Cal.	5,000,000	50,000	100	.....	500,000	May. 1899	1.00
178	Osceola, c.	Mich.	2,500,000	93,000	25	.....	3,080,500	Dec. 1899	3.00
179	Pacific Coast Borax.	Cal.	2,000,000	20,000	100	100,000	522,500	Dec. 1900	5.00
180	Parrot, c.	Mont.	2,300,000	230,000	10	345,000	3,380,898	Jan. 1900	1.50
181	Pennsylvania Coal.	Pa.	5,000,000	100,000	50	.....	4,050,000	May. 1899	8.00
182	Pennsylvania Con.	Cal.	5,150,000	51,500	100	15,450	151,625	Mar. 1900	.10
183	Pennsylvania Steel, pf.	Pa.	1,500,000	15,000	100	26,250	52,500	Jan. 1900	1.75
184	Petro, g.	Utah.	1,000,000	200,000	5	.....	32,000	Oct. 1899	.02½
185	Pharmacist Con., g.	Colo.	1,500,000	1,500,000	1	.....	84,000	Jan. 1898	.01
186	Pioneer, g.	Cal.	1,000,000	100,000	10	.....	62,500	Mar. 1899	.12½
187	Pittsburg Coal, pf.	Pa.	32,000,000	308,000	100	539,000	539,000	Jan. 1900	1.75
188	Plumas Eureka, g.	Cal.	1,406,250	140,625	10	.....	2,713,169	Oct. 1896	.12
189	Portland, g.	Colo.	3,000,000	3,000,000	1	210,000	2,767,080	Mar. 1900	.02
190	Princess, g.	Colo.	1,000,000	1,000,000	1	.....	40,000	May. 1896	.01
191	Prince Albert, g.	Colo.	3,000,000	3,000,000	1	.....	.....	.....	.....
192	Queen Bess Propr., s. l.	B.Col	500,000	100,000	5	.....	25,000	July. 1899	.12½
193	Quicksilver, pref.	Cal.	4,300,000	43,000	100	.....	1,845,411	May. 1899	.50
194	Quincy, c.	Mich.	2,500,000	100,000	25	500,000	11,570,000	Feb. 1900	5.00
195	Rambler—Cariboo, s. l.	B.Col	1,000,000	1,000,000	1	.....	60,000	Dec. 1899	.01
196	Raven, g.	Colo.	1,500,000	1,000,000	1	30,000	99,500	Mar. 1900	.01
197	Reco, s. l.	B.Col	1,000,000	1,000,000	1	.....	297,500	Jan. 1898	.10
198	Republic Con., g.	Wash	3,500,000	3,500,000	1	105,000	382,500	Mar. 1900	.01
199	Republic Iron & Steel, pf	U. S.	25,000,000	212,570	100	371,997	1,215,992	April. 1900	1.75
200	Reward, g.	Cal.	1,000,000	100,000	10	.....	20,000	Aug. 1899	.20
201	Russell-Irwin, z.	Mo.	250,000	25,000	10	.....	15,000	Oct. 1899	.10
202	Sacramento, g.	Utah.	5,000,000	1,000,000	5	.....	138,000	Oct. 1899	.00½
203	St. Joseph, l.	Mo.	3,000,000	300,000	10	37,500	2,934,500	Mar. 1900	.50
204	Seventy-Six, g. s.	Colo.	1,000,000	200,000	5	.....	2,950	Mar. 1898	.01
205	Santa Rosalia, g.s.	Cal.	100,000	100,000	1	.....	130,000	Oct. 1899	.05
206	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	225,000	2,675,000	Mar. 1900	.50
207	Small Hopes, s.	Colo.	5,000 000	250,000	20	.....	3,325,000	Feb. 1899	.10
208	Smuggler, s. l. z.	Colo.	1,000,000	1,000,000	1	90,000	1,300,000	Mar. 1900	.03
209	South Eureka, g.	Cal.	1,500,000	300,000	5	.....	12,000	May. 1898	.04
210	South Swansea, s. l.	Utah.	150,000	150,000	1	.....	165,000	Oct. 1899	.05
211	Specimen, g.	Colo.	1,200,000	1,200,000	1	.....	.....	.....	.....
212	Squaw Mountain, g.	Colo.	2,000,000	2,000,000	1	.....	10,000	Nov. 1899	.00½
213	Standard Con., g. s.	Cal.	2,000,000	200,000	10	20,000	3,919,226	Feb. 1900	.10
214	Standard	Idaho	500,000	500,000	1	.....	1,745,000	April. 1899	.06
215	Stratton's Independ'ce.	Colo.	5,500,000	1,000,000	5	480,000	1,440,000	Feb. 1900	.48
216	Strong, g.	Colo.	2,500,000	2,500,000	1	75,000	925,000	Mar. 1900	.01
217	Swansea, s. l.	Utah.	500,000	100,000	5	20,000	221,500	Mar. 1900	.05
218	Tamarack, c.	Mich.	1,500,000	60,000	25	.....	6,270,000	Dec. 1899	6.00
219	Temonj, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
220	Tomboy, g.	Colo.	1,500,000	300,000	5	.....	812,000	Dec. 1899	.24
221	Tornado, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
222	Union, g.	Colo.	1,250,000	1,250,000	1	.....	82,744	June. 1896	.01
223	Union Leasing	Colo.	1,000,000	1,000,000	1	.....	336,000	July. 1895	.04
224	United, z. l., pref.	Mo.	1,000,000	40,000	25	20,000	60,000	Jan. 1900	.50
225	United Verde, c.	Ariz.	3,000,000	300,000	10	450,000	1,312,500	Mar. 1900	.50
226	Utah	Utah.	1,000,000	100,000	10	.....	179,000	Jan. 1899	.02
227	Victor, g.	Colo.	1,000,000	200,000	5	.....	1,155,000	Dec. 1898	.50
228	Vindicator, Con., g.	Colo.	1,500,000	1,065,000	1	53,250	357,750	Jan. 1900	.05
229	War Eagle Con.	B.C.	2,000,000	1,750,000	1	52,500	545,250	Feb. 1900	.01½
230	West. Mine Enterprise.	Mont.	500,000	120,000	1	.....	48,680	Jan. 1898	.20
231	What Cheer, z.	Mo.	225,000	22,500	10	4,500	9,000	Feb. 1900	.20
232	Wolverine, c.	Mich.	1,500,000	60,000	25	120,000	390,000	April. 1900	2.00
233	Work, g.	Colo.	1,500,000	1,500,000	1	.....	.....	.....	.....
234	Yellow Aster, g.	Cal.	1,000,000	100,000	10	60,000	383,789	Mar. 1900	.20
235	Ymir, g.	B.Col	1,000,000	125,000	5	.....	30,000	Nov. 1899	.24
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G., Gold. S., Silver. L., Lead. C., Copper. Z., Zinc. This table is corrected up to March 24. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

Abrasives—	Cust. Meas.	Price.
Carborundum, f.o.b. Niagara Falls, Powd.,		
F. FF. FFF	lb.	$0.10
Minute No. 1	"	.15
No. 15	"	1.00
Corundum, N. C.	"	.07@.10
Chester	"	.04½@.05
Emery, Turkish flour	"	.03
Grains	"	.05
Naxos flour	"	.03
Grains	"	.05
Chester flour	"	.03
Grains	"	.05
Peekskill flour	"	.01¾
Grains	"	.02½
Crude, Kuluk, best	lg. ton	18.50
Levant, "	"	22.00
Naxos (Greek) best	"	26.00
Pumice Stone, Am. powd.	lb.	.01¾@.02
Italian, powdered	"	.01½
Lump, per quality	"	.04@.40
Rottenstone, ground	"	.02¼@.03
Lump, per quality	"	.05@.14
Rouge, per quality	"	.17@.30
Acids—Acetic, 30% pure	100 lbs.	2.75
30% ch. pure	"	6.00
80% pure	"	7.50
Benzoic, English	oz.	.12
German	lb.	.46
Boracic, pure cryst	"	.10½
Powdered	"	.11
Carbolic, crude, 60%	gal.	.28
Cryst. 37%	lb.	.36
Liquid, 95%	gal.	.40
Carbonic, liquid	lb.	.12½
Chromic, crude	"	.20
Chem. pure	"	.50
Absol. ch. pure	"	1.75
Hydrochloric, ch. pure	"	.07
Hydrofluoric, 36%	"	.03
48%	"	.05
Best	"	.25
Nitric, chem. pure	"	.09
Sulphuric, 98%	"	.01½
Chem. pure	"	.07
Tartaric, cryst	"	.31½
Powder	"	.32
Alcohol—Grain	gal.	2.40
Refined wood, 95@97%	"	.90@.95
Purified	"	1.20
Alum—Lump	100 lbs.	1.75
Ground	"	1.85
Chrome, com'l	"	3.50
Aluminum—Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Hydrated	"	.05
Sulphate, pure	"	1.50
Com'l	"	.01¼
Ammonia—Aqua, 16°	"	.04½
18°	"	.05
20°	"	.05½
26°	"	.07½
Ammonium—Bromide, p'r	"	.52@.53
Carbonate lump	"	.08¼@.08¾
Powdered	"	.09¼@.09¾
Muriate, gran., white	"	.06¼@.06⅜
Gray, gran	"	.06⅜@.06½
Lump	"	.08¼@.08½
Nitrate, white, pure (99½)	"	.10½
Phosphate, com'l	"	.12
Chem. pure	"	.60
Antimony—Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¾
Best	"	.08½
Oxide, com'l white, 95%	"	.09¼
Com'l white, 99%	"	.12
Com'l gray	"	.07
Sulphuret, com'l	"	.16
Arsenic—White	"	.04¾
Red	"	.07¾
Asphaltum—		
Ventura, Cal.	sh ton	32.00
Cuban, crude	lb.	.01½@.03½
Egyptian, crude	"	.06
Trinidad, refined	lg. ton	30.00@35.00
San Valentino	lg. ton	15.00
Seyssel (French) mastic	sh.ton	21.00
Gilsonite, Utah, ordinary	lb.	.03
Select	"	.03¾
Barium—Carbonate, Lump, 80@90%	sh. ton	25.00@27.50
92@98%	"	26.00@29.00
Powdered, 80@90%	lb.	.01¾@.02
Chloride, com'l	"	.02@.02¼
Chem. pure cryst	"	.05
Nitrate, powdered	"	.06
Oxide, com'l, hyd. cryst	"	.18
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphate	"	.01
Barytes—Am. Cr., No. 1	sh.ton	9.00
Crude, No. 2	"	8.00
Crude, No. 3	"	7.75
Am. Floated	"	14.50@17.50
German, gray	"	14.50
Snow white	"	17.50
Bauxite—Ga. mines: 1st grade	lg. ton.	5.00@5.10
Second grade	"	4.00@4.50
Ala., f.o.b., 1st grade	"	5.00
Second grade	"	3.85
Bismuth—Oxide, hydr.	lb	2.25@2.30
Subnitrate	"	1.30@1.35
Bitumen, "B"	"	.03½
"A"	"	.05
Bone Ash	"	03¾@.03½
Borax—Cryst. and pow'd	"	.07@.07¼
Calcined	"	.25
Bromine—Bulk	"	.45
Cadmium Metallic	"	1.50@2.00
Acetate, pure white	100 lbs.	1.00
Sulphide	"	2.00@3.00
Sulphate	"	2.00@2.50

Calcium—	Cust. Meas.	Price.
Acetate, gray	100 lbs.	$1.55
" brown	"	1.10
Carbide, in ton lots, f.o. b. Niagara Falls, N.Y.	sh. ton	75.00
Carbonate, ppt.	lb.	.05
Chloride, com'l	100 lbs.	.95
Best	"	1.90
Sulphite	lb.	.05
Cement—		
Portland, Am., 400 lbs.	bbl.	1.50@2.00
Belgium	"	1.95@2.20
English	"	2.45@2.55
German	"	2.30@2.70
"Rosendale," 300 lbs.	"	1.10
Sand cement, 400 lbs.	"	1.55@1.95
Slag cement, imported	"	1.65
Ceresine—		
Orange and Yellow	lb.	.11
White	"	.12.@.13½
Chalk—Lump, bulk	sh. ton	2.15
Precipitated	lb.	.05
French	"	.03
Chlorine—Liquid	"	.28
Water	"	.15
Chrome Ore—		
(50% chrome) ex ship	lg. ton	20.00
Sand	"	35.00
Bricks, f.o.b., Pittsburg, M		175.00
Clay, China—Am. com., ex-dock, N. Y.	lg ton	7.70
Am. best, ex-dock, N. Y.	"	8.70
English, common	"	11.50
Best grade	"	16.50
Fire, ground, f.o.b. Jersey City, N. J.	sh. ton	4.00@5.00
Slip Clay	"	6.00
Coal Tar Pitch	gal.	.08
Cobalt—Carbonate	lb.	1.50
Nitrate	"	1.30
Oxide—Black	"	2.00
Gray	"	2.50
Smalt, blue ordinary	"	.20
Best	"	.30
Chem. pure	"	5.00
Copperas	100 lbs.	.72½
Copper—Carbonate	lb.	.18
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide, com'l	"	.19
Cream of Tartar—Crys.	"	.21½
Granulated	"	.21½
Powdered	"	.22½
Cryolite	"	.06½
Explosives—		
Blasting powder, A. 25 lb. keg		2.50
Blasting powder, B.	"	1.25
"Rackarock," A	lb.	.25
"Rackarock," B	"	.18
Judson R.R. powder	"	.10
Dynamite (20% nitro-glycerine)	"	.13
(30% nitro-glycerine)	"	.14
(40% nitro-glycerine)	"	.15
(50% nitro-glycerine)	"	.17
(60% nitro-glycerine)	"	.19
(75% nitro-glycerine)	"	.22
Glycerine for nitro (32 2-10° Be.)	"	.13½@.13⅞
Feldspar—Ground	sh. ton	7.00@8.50
Flint—(See Silica).		
Fluorspar, f. o. b. mines—		
Am. lump, 1st grade	"	7.50
2d gr.	"	7.00
Gravel	"	6.50
Crushed	"	8.00
Ground, extra fine	"	13.00
Fine	"	11.50
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump	100 lbs.	.75
Powdered	"	.85
Refined lump	"	1.25
Ganister Rock	lg. ton.	6.50
Gypsum—Ground	sh. ton	8.00@8.50
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—Ground.		
American, best	"	20.00
French	"	37.50
German	"	40.00
Iodine—Crude	100 lbs.	2.45
Resublimed	"	2.85
Iron—Chromate	lb.	.03@.10
Muriate	"	.05
Nitrate, com'l	"	.01¼
True	"	.03¾
Oxide, pure copperas col	"	.05@.10
Purple-brown	"	.02
Venetian red	"	.01@.01½
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white	lb.	.07
Com'l, broken	"	.06½
Brown	"	.05½
Nitrate, com'l	"	.06½
Chem. pure	"	.35
Lime—Bldg., ab. 250 lbs	bbl.	.90
Finishing	"	1.00
Magnesite—		
Crude, lump (95%) Greece	lg. ton	7.00@7.50
German (85%)	"	12.00
Calcined (Greece)	sh. ton	16.50
Domestic, soft	"	12.00@15.00
Bricks (Greece)	M.	170.00
Bricks, Am., f.o.b. Pittsburg	M.	175.00
Magnesium—		
Carbonate, light, fine pd	lb.	.03¾
Blocks	"	.06@.09
Chloride, com'l	"	.01¾
Fused	"	.20
Nitrate	"	.60
Mangenese—Crude, pow'd 70@75% binoxide	"	.01¼@.01½

Manganese—	Cust. Meas.	Price.
Crude, pow'd		
75@85% binoxide	lb.	.01½@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.02¾@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%, Foreign	unit	.24@.24½
Domestic	"	.30
Crude, prepared, domestic	lb.	.01@.01½
Marble—Flour	sh. ton	5.50@6.00
Mercury—		
Bichloride	lb.	.74
Mica—N. Y. gr'nd, coarse	"	.03@.05
Fine	"	.06@.07
Sheets, 1½x3 in.	"	.60
8x10 in.	"	13.00
Mineral Wool—		
Slag, ordinary	100 lbs.	.90
Selected	"	1.40
Extra	"	3.00
Rock, ordinary	sh. ton	32.00
Selected	"	40.00
Extra	"	50.00
Monazite—92%	"	140.00
Nickel—Oxide, No. 1	lb.	1.00
No. 2	"	.60
Oils—Black, reduced 29 gr.:		
25@30 cold test	gal.	.11@.11½
15, cold test	"	.12@.12½
Zero	"	.13@.14
Summer	"	.10½@.11
Cylinder, dark steam ref	"	.10@.15
Dark filtered	"	.18@.18
Light filtered	"	.15@.17½
Extra cold test	"	.23@.27
Gasolene, 86°@90°	"	.16@.21
Naphtha, crude 68@72°	"	10.65
"Stove"	"	.13
Linseed, domestic raw	"	.54
Boiled	"	.58
Calcutta, raw	"	.68
Graphite, lubricating, Am. dry	lb.	.10
In oil	"	.12
Axle grease	"	.08½@.10
Wood grease	"	.05@.06
Ozokerite—Foreign	"	.08
Paints and Colors—		
Benzine, Sumatra	"	.35@.40
Marbled	"	.27
Chrome green, common	"	.05
Extra	"	.12@.15
Yellow, common	"	.10
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack, com'l	lb.	.08
Refined	"	.08
Calcined	"	.12@.20
Fine spirit	"	.20@.35
Litharge, Am. powd.	"	.06½
English flake	"	.09½
Glassmakers, Foreign	"	.06½@.08
Metallic, brown	sh. ton	16.00@19.50
Red	"	16.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾
French, washed	"	.01¼@.02½
Orange mineral, Am.	"	.08¾@.09½
Foreign, as to make	"	.09¾@.11¼
Paris green, pure, bulk	"	.12½
Red lead, American	"	.06½@.07
Foreign	"	.08¼
Shellac, "D. C."	"	.27
Native	"	.14½
Turpentine, spirits	gal.	.54½@.55
Ultramarine, best	lb.	.25
Vermilion, Amer. lead	"	.14
Quicksilver	"	.69
Chinese	"	.80
English, imported	"	.71
White lead, Am., dry	"	.05¾
In oil	"	.06½
English, in oil	"	.08¾
Whiting, common	100 lbs.	.42
Gilders	"	.54
Zinc white, Am., ex. dry	lb.	.04¾@.05
American, red seal	"	.07@.07¼
Green seal	"	.07⅝@.08
Foreign, red seal, dry	"	.06¼@.07⅜
Green seal, dry	"	.06¾@.08⅛
Foreign, in oil	"	.10¼@.11¾
Plumbago—		
Am. lump, f. o. b. Providence, R. I.	sh. ton	8.00
Am. pulv., f. o. b. Providence, R. I.	"	30.00
German, lump	lb.	.01½
Pulverized	"	.02
Ceylon, pulv. common	"	.03¾
Best	"	.06@.10
Italian, pulv	"	.01¼
Potash—Caustic, ord	"	.05½
Elect. (90%)	"	.06½
Potassium—		
Bicarbonate cryst	"	.08¼
Powdered or gran	"	.12
Bichromate	"	.09
Bromide	"	.40
Carbonate	"	.02¾
Chromate	"	.33
Cyanide (98@99%)	"	.28@.29
Ferro-cyanide	"	.19
Iodide, bulk	"	2.30
Permanganate, pure cr.	"	.14
Prussiate, yellow	"	.18½
Red	"	.37
Silicate	"	.06
Sulphide, com'l	"	.10
Quartz—(See Silica).		
Rosin—Common (280 lbs.)	bbl.	1.60
Best	"	4.10
Salt—N.Y. com. fine abt. 380 lbs	bbl.	.70
N. Y. agricultural	sh. ton	1.50
N. Y. coarse	sh. ton	$2.30
N. Y. dairy and table	"	2.90
Saltpeter—Crude	100 lbs.	3.62½@3.75
Refined	"	4.00@4.25
Samarskite	lb.	1.00
Silica—Best foreign	lg. ton	10.00@11.00
Ground quartz, ord	sh. ton	6.00@8.00
Best	"	12.00@13.00
Lump quartz	"	2.50@4.00
Glass sand	"	2.75
Fire bricks (Blue Welch)	M.	35.00
Silver—Chloride	oz.	.65
Nitrate	"	.40
Oxide	"	.85@1.10
Slate—Ground	sh. ton	7.50@8.25
Sodium—Acetate, com'l	lb.	3¾
Bichromate	"	.06½
Bromide	"	.50
Chlorate, com'l	"	.10
Hyposulphite	100 lbs.	1.60@1.70
Nitrite	lb.	.07½
Peroxide	"	.45
Phosphate	"	.02¾
Prussiate	"	.14½
Triphosphate	"	.04
Silicate, conc. com'l	"	.05
	"	.01
Sulphate, gran., puri'd.	"	.03
Sulphide	"	.01¾
Sulphite	"	.02½
Tungstate, com'l	"	.35
Pure	"	.50
Strontium—Nitrate	"	.08
Sulphur—Roll	100 lbs.	1.75
Flour	"	1.85
Flowers, sublimed	"	2.05
Talc—N. C., 1st grade	sh. ton	13.75
N. Y., Fibrous	"	8.00@9.00
French	lg. ton	16.00
Italian	100 lbs.	1.50@2.00
Tin—Bichloride	lb.	.10@.12
Crystals	"	.20
Muriate, 36°	"	.09
Muriate, 52°	"	.15
Oxide, white, ch. pure	"	.41
Uranium—Oxide	"	1.80@3.00
Zinc—Metallic, ch. pure	"	.09
Carbonate	"	.15
Chloride	"	.05
Dust	"	.07¼
Sulphate	"	.02½

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5.71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N Y.)	lb.	32.00
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Cadmium	kg.	1.90
Calcium	grm.	4.28@5.95
Cerium—Fused	grm.	1.02
Nitrate (N. Y.)	lb.	17.00
Chromium—Fused, Elect.	kg.	5.95
Pure powder 95%	"	1.79
Chem. pure cryst	grm.	.26
Cobalt—(98@99%)	kg.	6.31@7.85
Pure	"	30.94
Didymium—Nitrate (N.Y.)	lb.	60.00
Erbium	grm.	3.09
Nitrate (N. Y.)	lb.	62.00
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.50
Indium	grm.	4.05
Iridium	"	1.43
Lanthanum—Powder	"	4.28
Electrol, in globules	"	9.04
Nitrate (N. Y.)	lb.	57.00
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Magnesium—In bars	kg.	6.19
In wire	"	9.99
Powdered	"	5.71@6.90
Molybdenum—Fused	grm.	.20
Powder, 95%	kg.	2.62
Niobium	grm.	3.81
Osmium	"	.95
Palladium—Wire	"	.95
Sponge	"	71
Potassium—In balls	kg.	17.85
Rhodium	grm.	2.62
Rubidium—Pure	"	4.76
Ruthenium—Powder	"	2.38
Rutile—Crude	kg.	.43
Selenium—Com'l powder	"	33.32
Sublimed powder	"	42.84
Sticks	"	35.70
Silicium—Com'l	"	28.56
Pure crystals	"	59.50
Sodium	kg.	1.07
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	3.57
Tellurium—Ch. p. sticks	kg.	119.00
Powder	"	95.20
Thallium	"	26.18
Thorium—Metallic	grm.	7.85
Nitrate 49@50% (N. Y.)	lb.	5.00
Titanium	kg.	47.60
Uranium	"	190.40
Nitrate (N. Y.)	oz.	.25
Vanadium—Fused	grm.	1.19
Wolfram—Fused, elect	kg.	238.00
Powder, 95@98%	"	1.67
Purest, powder	"	6.43
Yttrium	grm.	3.33
Nitrate (N. Y.)	lb.	62.00
Zirconium—Com'l	kg.	119.00
Nitrate (N. Y.)	lb.	9.00

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to March 31. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.